HAWLER MEDICAL UNIVERSITY

HEALTH SEEKING BEHAVIOR AND CONSUMER SATISFACTION WITH HEALTH CARE SERVICES IN ERBIL CITY

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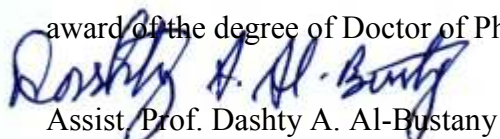
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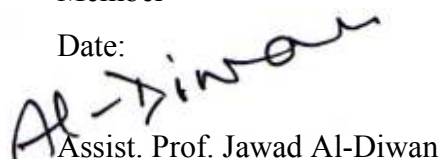
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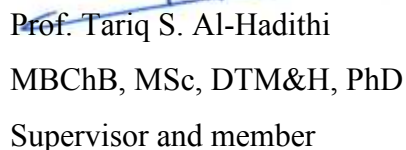
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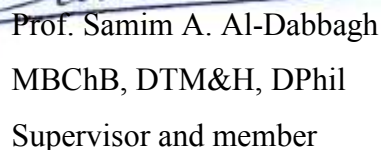
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[*]The Quran, chapter 31, verse 14: Pickthall translation.

ABSTRACT

Like many transitional communities in the developing countries, a wide range of therapeutic choices coexist in Kurdistan region. This medical pluralism is one of the characteristic features of the health system. The available therapeutics choices for individual in the region range from self-treatment to public health system with its primary, secondary and tertiary elements, to a wide variety of private sector options. Everyday thousands of people become ill and make use of these health care services but little is known about their health seeking behavior.

The aim of this study is to answer the basic questions of who becomes ill, what they do, when and why and their satisfaction with these services in a representative sample from Erbil city. To achieve this goal, a community-based house to house study was conducted with a sample size of 1328 individuals. Satellite images and geographical information system were used to identify residential pattern that helped design a more representative sample. Data collection was done during the six months between January and June 2011. Principal Component Analysis was used to assign weight and develop an evidence-based socioeconomic scale.

The results showed that the overall rate of illness among the general population was 7.1% in the past two weeks and 16.6% in the past month prior to the interview. A minority did not seek external help but the majority (90.7%) did so and their choices of providers were: 44.8% consulted a private doctor clinic as their initial response to the illness and other providers included: 21.8%, 17.4%, 9.4% and 6.5% for nurse clinic, emergency department, primary health care centers and public health centers respectively. No one from the sample consulted traditional healer in the initial step but a significant minority (2.4%) did so when they did not get benefit from the first attempt. A similar proportion chose to travel abroad as their next choice of service provider. The findings from this study can help public health policy makers better understand the way people behave when becoming ill and help them plan for higher quality health services.

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LIST OF ABBREVIATIONS AND ACRONYMS

AHRQ	Agency for Healthcare Research and Quality
AMA	American Medical Association
ANOVA	Analysis of variance
APHA	American Public Health Association
CDC	Centers for Disease Control and Prevention
COSIT	Central Organization for Statistics and Information Technology-Iraq
DALE	Disability Adjusted Life Expectancy
DALY	Disability Adjusted Life Years
DOH	Directorate of Health
EMRO	East Mediterranean Region Office of WHO
GIS	Geographical Information System
HSB	Health Seeking Behavior
HSR	Health Service Research
IHSES	Iraq Household Socioeconomic Survey
IOM	Institute of Medicine
KAP	Knowledge, Attitude and Practice
KRSO	Kurdistan Regional Statistic Office
MDG	Millennium Development Goals
MICS	Multiple Indicator Child Survey
MOH	Ministry of Health
NGO	Non-Governmental Organization
NHS	National Health Service
PAPFAM	Pan-Arab Project for Family Health
PCA	Principal Component Analysis
PHCCs	Primary Health Care Centers
SES	Socioeconomic status

SPSS	Statistical Package for Social Sciences
STD	Sexually-Transmitted Diseases
TB	Tuberculosis
UNAIDS	United Nations Program on HIV and AIDS
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations International Children's Emergency Fund
USAID	United States Agency for International Development
WHO	World Health Organization

INTRODUCTION

Background and rationale

Like most of the communities that undergo transition in the developing countries, a wide range of therapeutic choices coexist in Iraq as well as in Kurdistan region. This medical pluralism is one of the characteristic features of Iraqi health system. The available therapeutics choices for individual in the region ranges from self-treatment at home to public health system with its primary, secondary and tertiary elements, to private health sector where almost all the medical doctors and many nurses have their own private clinic and moonlight in the afternoon to the burgeoning market of private hospitals especially in Erbil City. With the availability of all these modern western medical (allopathic) choices, still a significant minority of people resort to traditional and spiritual healers (Ahmed 2005; WHO 2006c).

With regard to the public sector, Iraq has a relatively extensive network of primary health care centers (PHCCs) that is funded and managed by the Ministry of Health. There are about 1,800 PHCCs throughout Iraq each with a catchment area of 20,000 to 35,000 people. About half of the PHCCs are run by medical doctors while the rest by medical assistants and nurses especially in rural areas. Up to now, there are no scientifically rigorous community-based studies about who uses what services, when and why. Unconfirmed reports and observations mention that in most health centers, medical doctors spend only 2-3hours (9.00 am to 12.00 pm) per day during which they see between 30 and 100 patients, with an average consultation time of 1 to 5 minutes per patient. Additionally, it is also observed that most of the patients who use public PHCCs in the morning hours are females, children and elderly. Middle to high socio-economic people tends to bypass PHCCs services except for immunization which is not provided elsewhere. In addition to the health centers, many people resort to private clinics for their health care. Up to now there is no scientific documentation about the use of these services but there are some reports that about 50% of the population resorts to the private sector as a first choice for health care (Alwan 2004; UNDP *et al.* 2005; WHO 2006c).

Up to recent years, the main focus of many developing countries to make better use of health services, including Iraq, was through investing heavily on the supply side interventions like building more hospitals and health centers, establishing more health related colleges, more training for healthcare professionals, and procuring more expensive drugs and medical supplies and equipments. These measures had limited effect because they were neglecting an important factor: the consumer. Recently, the role of demand side has gained more interest countries to increase better utilization of health care services especially in developing (Grundy *et al.* 2010). Such an interest in Iraq started mainly following 2003 as part of the various efforts to rebuild and strengthen the collapsed health system which suffered severe damage to both the public and as well as the private health sectors for more than two decades. The public sector suffered because it was totally dependent on government for its sustainability and lack of resources due to three devastating wars was the main cause. On the other hand, the private sector also suffered due to brain drain and lower purchasing power of people (Liu *et al.* 2003; Telyukov 2003; Evans 2004; Liu *et al.* 2004).

As mentioned above, the Ministry of Health invests a lot of money in maintaining this vast network of PHCCs without having feedback from its consumers. Routine health information is collected from each health center which includes age, gender and provisional diagnosis but do not include any sort of satisfaction measures. No information is collected about the use of private clinics.

To show paucity of scientific literature about health seeking behavior in Iraq, a search in PubMed and Google Scholar for the keywords of "health", "seeking", and "Iraq" retuned only 10 results but none of them were about Iraq. They are all related to health seeking behavior among USA military personnel 'returning' from Iraq. The literature about health care utilization and consumer satisfaction are also lacking but they are starting to emerge but most of them are facility-based and not community-based which has the potential to miss many groups who did not used such facilities investigated by the researchers (Lafta 2007; Peschke *et al.* 2009; Burnham *et al.* 2011).

This study tries to fill the gap in the scientific literature related to the health seeking behavior of the general population in Erbil City and tries to come up with answers to the questions: what people do, where do they go for help, when and why? With so many

therapeutic options available to people, better understanding the way people behave when becoming ill become more important for better utilization and improving quality of the health services.

Health seeking behavior is a complex decision-making process and many factors including, internal and external, play a great role in it. Better understanding of these factors is essential for planning and implementing effective public health programs and interventions. On the other hand, such a behavior can also have profound effect on the health outcome of people. Many theories and models have been suggested to understand health seeking behavior and its determinants. These models and theories differ in some aspects and have some common features. Some are suggested to understand specific populations in specific circumstances like immigrants while others have try to model the behavior of the general population (Glanz *et al.* 2008).

Results from this study are thought to be relevant for health authorities to be able to better plan for the services provided. This will also help to publicize and spotlight a chronic problem with quality of health care in the primary health care centers. It may help the local health authorities to activate their quality insurance committees to better serve the population and reduce the negative picture of low quality associated with public PHCCs. Additionally; it can serve as a baseline data for further endeavors aimed at improving the quality of care.

Aim of the study

This study aims at answering the basic questions of who is using what services, at what time of the day and why. Additionally it also addresses consumer satisfaction of these services from a representative sample in Erbil city.

Specific objectives of the study

1. Identify characteristics of people using different health services.
2. Examine the effect of time, type of disease and social status on using different services.
3. Document health seeking behavior of people.
4. Explore satisfaction with health services.

CHAPTER 1
LITERATURE REVIEW

This chapter provides a review of literature with regard to the concepts of health seeking behavior and consumer satisfaction. Additionally it will also provides necessary background information and presents a critical review of literature and the conceptual models that try to interpret and predict how people seek health care when they become ill and answer the questions of why, when and where people seek health care.

This chapter is organized into five sections: the first section tries to give an overview of Health Service Research (HSR), its scope, importance and some examples. This overview of HSR in general will serve to better illustrate how health seeking behavior fit into the context of the overall HSR. Section two is more specific and describes the main concept of this study which is Health Seeking Behavior (HSB), elaborating on its definition, determinants and then goes through relevant literature. The next section is about the other important concept of this study which is consumer satisfaction.

Following these sections about the main concepts, the last two sections give an overview health system in Erbil city. Section four gives an overview of our health system describing its characteristics and infrastructure and giving a short account of its historical development. The final section describes what health care options are available to people in Erbil city for different types of health conditions and at different times of the day and week.

1.1. Health Service Research

1.1.1. Overview

Providing high quality, accessible, affordable, acceptable, complete, comprehensive, coordinated and continuous health care to the entire population is becoming, day after day, a growing challenge both for the developed as well as the developing countries (WHO 2000; Steinwachs *et al.* 2008). The costs are rising: people have more expectation and use the health system for many more issue than few decades ago, the population is aging, the chronic diseases are becoming epidemic and new and more expensive drugs

and equipments are increasingly used among some of the reasons (Orszag *et al.* 2007; WHO 2008a).

Health care sector has its own peculiarities and it is very complex. There are many questions that need to be answered to ensure quality health care delivery. Some of these questions are about the use, cost, quality, accessibility, organization, financing, inputs, processes, output and outcomes. These questions are not static and continuously changes with time so we have to provide changing answers to these dynamic questions with regard to the health care system. In order to provide appropriate answers to these and related questions for better planning and delivery of health services, Health Service Research (HSR) tries to investigate these areas and inform policy makers, health service providers and as well as consumers of what works best (WHO 2000; Steinwachs *et al.* 2008).

Health Service Research (HSR) is a multi-disciplinary field that combines both basic and applied research, bringing into play many health professions and academic disciplines, including biostatistics, epidemiology, health economics, internal medicine, primary health care, nursing, operations research, psychology, and sociology (Aday *et al.* 2006; Steinwachs *et al.* 2008).

The Institute of Medicine (IOM) (Appendix I) has defined HSR as "inquiry to produce knowledge about the structure, processes, or effects of personal health services" (Institute of Medicine 2001). In 2002, this definition was elaborated on by AcademyHealth (Appendix I) and the definition broadly describes the scope of HSR: "Health services research is the multidisciplinary field of scientific investigation that studies how social factors, financing systems, organizational structures and processes, health technologies, and personal behaviors affect access to health care, the quality and cost of health care, and ultimately our health and well-being. Its research domains are individuals, families, organizations, institutions, communities, and populations" (Lohr *et al.* 2002; Steinwachs *et al.* 2008).

1.1.2. Scope

Health surveys in general and more specifically HSR can cover a wide variety of topics. Drawing on the previous definition, these can include but not limited to: distribution and determinants of health conditions, response of patients and the public, personnel and

organization of health service delivery. Health status (Figure 1-1) is usually the focus of many HSR either directly or indirectly. In addition to collecting information about the health status, other topics may include: utilization of health services, satisfaction with health service as in this study. Figure 1-1 also shows other domains of studying like health expenditures. These topics are usually combined with characteristics of population, characteristics of environment, and characteristics of health care delivery system (Aday *et al.* 2006).
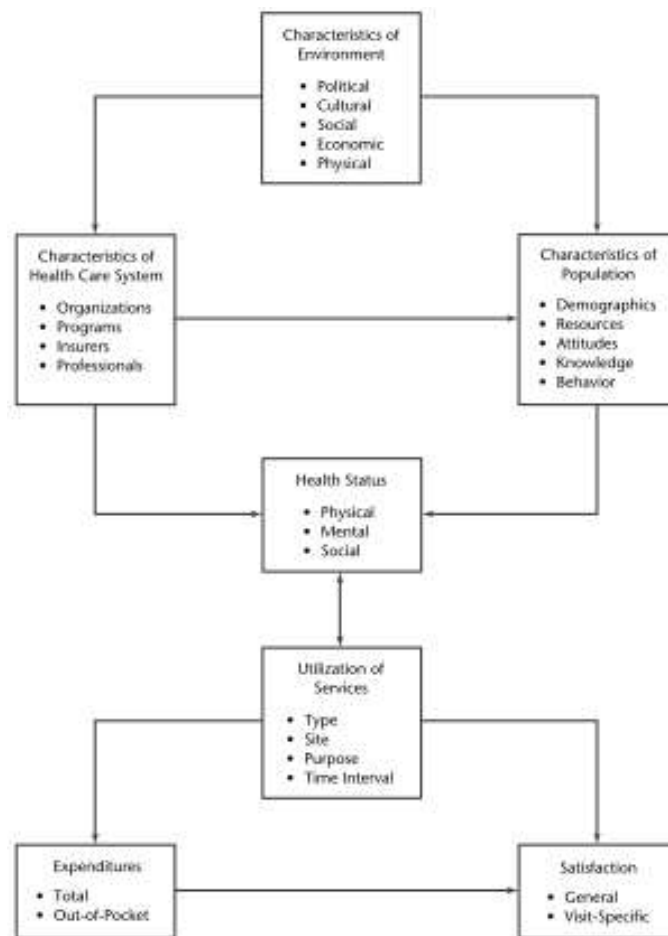
Figure 1-1. Framework showing the scope of health service research (Aday *et al.* 2006).

The blocks shown in Figure 1-1, representing different factors, can affect the health status of individuals and populations and can be studied accordingly. The arrows show the possible ways that these factors affect the health status or each other. HSR can be used to study the influence of the more general political, cultural, social, economic, and physical environment of a community, in addition to the characteristics of the people who live in these communities, and the health care system that is supposed to care for them.

In addition to health policy, HSR looks at the process of healthcare delivery and the interactions of patients and providers. For example, HSR methods have been developed to examine doctor-patient relationship patterns and study its impact on patient adherence to treatment, satisfaction with health services, and outcomes of care (Aday *et al.* 2006).

1.1.3. Examples

Below are just few examples of HSR that have been conducted internationally as well as in USA to demonstrate the scope of HSR, otherwise a comprehensive list is beyond the scope of this section. Listing of these examples is to show how advanced such studies have been especially in the United States while it is almost non-existent in our country and the region.

A. International

The World Health Organization (WHO) has started in the recent years to focus more on health system research and the most visible work was the landmark report that was published in 2000 as part of the world health reports series: Health Systems: Improving Performance (WHO 2000). The report ranked all the 192 member countries according to their health system performance based on status of health, fairness of financing and responsiveness. Although many researchers criticized the report for its methodology but still it is widely cited and initiated a strong interest in overall global health system comparison and it had a major role in promoting comparative studies across nations in both developed and developing countries.

This controversial report was followed by two equally important reports by WHO from the same series: the first, Primary Health Care, Now More Than Ever in 2008 (WHO 2008b) and the second, Health Systems Financing: the Path to Universal Coverage in 2010 (WHO 2010). The former focused on the renewed interest in PHC as a model for health care philosophy and service delivery after three decades from the Declaration of Alma-Ata while the latter focused on current problems with universal coverage and health care financing. In addition to these major reports, WHO also published many technical reports about health systems like the Making Health Systems Work Series (WHO 2005a; WHO 2005b; WHO 2006b; WHO 2006d; WHO 2007a; WHO 2007b; WHO 2007c).

Furthermore, WHO was also involved in many health service studies in collaboration with national governments and/or other international health organizations like UNICEF. They have helped many countries to develop their own capacity to conduct such studies. They also helped to standardize survey design and sampling methodologies to making it easier to conduct such studies and to overcome the issues arising from data comparability, methods of data collection and quality due to various political, cultural, social, economic and physical environments (Aday *et al.* 2006). Below are some examples:

- World Health Survey (WHS): is a nationally representative household survey of adult populations in more than 70 countries. Iraq was not included but some other countries in the region like Turkey, Arab Emirates, Tunisia and Pakistan were included. It was conducted between 2002 and 2004. The survey collected comprehensive data on population health and was aimed at providing insight into how health systems are functioning for purposes of policy analysis. Topics included health status, health care expenditures, emergency care services, conditions such as heart disease, asthma and osteoarthritis, and general demographics (WHO 2004).

- Global School-Based Student Health Survey (GSHS): 2003 and ongoing. This survey was the result of collaboration between several international health agencies including WHO, the Centers for Disease Control and Prevention (CDC), UNICEF, UNAIDS and UNESCO. It was conducted in schools of about 70 countries around the world including 13 of the East Mediterranean Region countries (EMRO) but not in Iraq and looks at the health behaviors of young students between the ages of 13 to15 years. The information is supposed to be used by national government to set priorities and develop programs and by international agencies to make comparisons across countries to have a better understanding of the prevalence and trends of risky health behaviors. The topics included: alcohol, tobacco and drug use, mental health, dietary behaviors, hygiene, physical activity, protective factors, sexual behaviors and violent behaviors and unintentional injuries (WHO 2003).

- WHO Multi-country Survey Study on Health and Health System's Responsiveness (MCSS): this was also a nationally representative household survey of adult

populations. It was conducted between 2000 and 2001 in more than 60 countries. Topics included: demographics, health status, health care systems, utilization of health services, responsiveness of health care providers, and health care expenditures (WHO 2001).

The WHO also formed an alliance of more than 300 partners in 1999 across the globe for the promotion of HSR as a means to improve health and health systems in developing countries. Partners include members from research institutions, universities, national and local governments, multilateral and bilateral agencies, international organizations, NGOs, foundations…. The objectives of the alliance include: stimulating the generation and synthesis of policy-relevant health systems knowledge; promoting the dissemination and use of health policy and systems knowledge; and capacity building for the generation, dissemination and use of health policy and systems research knowledge among researchers, policy-makers and other stakeholders (WHO 1999).

The United Nation's Children Fund (UNICEF) was also active in this regard. They have been conducting the "Multiple Indicator Cluster Survey (MICS)" which was intended to measure and monitor World Summit for Children indicators of child morbidity and mortality and progress in participating countries and to provide internationally comparable, statistically rigorous data on the situation of children and women so we can compare the indicators within countries and across countries. The first round of surveys (MICS I) was carried out in over 60 countries in 1995 including Iraq following the World Summit for Children. The second round (MICS II) was conducted in 2000 and was more comprehensive allowing monitoring of more indicators. The third round (MICS III) was conducted in 2006 and was intended to provide necessary criteria measurements to document the progress toward the Millennium Development Goals (MDG) (Appendix I), A World Fit for Children, and other major relevant international commitments. The fourth round was started in 2009. The MICS questionnaires includes households, administered to the head of household; women, administered to all eligible women of the household, and the under five year old children, administered to mothers of children (Aday *et al.* 2006; UNICEF *et al.* 2007).

The World Bank has also published a report, "Investing in Health", about the health sector in 1993 that was influential to draw attention to more studies about this sector. It shed

light on the interplay between health status of the population, health policy and economic development and was based on the latest research conducted by the World Bank in more than 185 countries including estimation of the global burden of disease and the cost-effectiveness of interventions. The report aimed at evaluating the national health policies globally and measures their progress with regard to improving the health status of the their population and reducing costs, recommending approaches governments can pursue to promote the health of the low socioeconomic people. This report was unique in including available data for a number of the former Soviet Union and the Eastern European countries for the first time (World Bank 1993).

B. USA

The Agency for Healthcare Research and Quality (AHRQ), which was established with the aim to draw advance health service research and quality, has sponsored a number of major studies. Below are some of them (Aday *et al.* 2006):

- National Medical Care Expenditure Survey (NMCES): this was a large-scale survey conducted in 1977 to study the medical expenditures in general.

- National Medical Expenditure Survey (NMES): this was a very comprehensive study with large sample size of a number of policy relevant socioeconomic groups (like the poor, elderly, disabled, and others) conducted in 1987.

- Medical Expenditure Panel Survey (MEPS): conducted in 1996 and was intended to collect data on the health care coverage and expenditures of the U.S. population that could be used directly in formulating health policy in this area.

- HIV Cost and Services Utilization Study (HCSUS): conducted on a national level to gather information on the utilization and costs of health care for people with HIV/AIDS.

- The Consumer Assessment of Health Plans Study (CAHPS): the increasing number of the Managed Care health services in the United States has sparked interest in consumers' perspective and choice. Patient satisfaction surveys become a central component of the reports issued on health care plan performance. This survey is intended to describe and compare participants' evaluation of their health care plans (AHRQ 2011).

The CDC is another major funding agency for health surveys through The National Center for Health Statistics (NCHS), which is one of its divisions. Below are some of their main surveys:

- National Health Interview Survey: is a continuously survey conducted every year to collect information on a basic number of variables on the health status and health care utilization of the American population in addition to additional information on a variable set of relevant subjects, for example: disability, smoking, behavior, dietary supplement use, exercise patterns, and knowledge and attitudes regarding HIV/AIDS.

- National Health and Nutrition Examination Survey (NHANES): is a major program of NCHS with the goals of assessing the health and nutritional status of adults and children in the United States, and to monitor changes over time. The survey collects direct clinical examination and laboratory data on study participants along with interview that includes demographic, socioeconomic, dietary, and health-related topics. The first survey was conducted in 1971 and it is continuous till now. The findings from these surveys are the basis for national standards for many measurements like height, weight, and blood pressure. Additionally, the findings are used in epidemiological studies and health sciences research, which help develop evidence-based public health policy, develop and improve health programs and services, and increase the knowledge about health behavior. This survey is continuation of National Health Interview Survey (NHIS) which was first conducted in 1957 (National Center for Health Statistics 2011).

- In the early 1990s, four NCHS record-based surveys (the National Hospital Discharge Survey, National Ambulatory Medical Care Survey, National Nursing Home Survey, and National Health Provider Inventory) were merged and expanded into one integrated survey of health care providers: the National Health Care Survey (NHCS). In addition, three new surveys were added and incorporated into the NHCS: the National Survey of Ambulatory Surgery, the National Hospital Ambulatory Medical Care Survey, and the National Home and Hospice Care Survey. This series of NHCS surveys gathers data on the characteristics of the patients seen and services provided in the respective health care settings.

The CDC also conducts another survey, Behavioral Risk Factor Surveillance System (BRFSS), every year since 1981 through the National Center for Chronic Disease Prevention and Health Promotion. It is a nation-wide population-base telephone survey of adults aged 18 years about the health status, health behavior, and risk factors.

Almost all professional health associations gather some information about their members. Both American Medical Association and American Hospital Association regularly collect data on their member. In a similar way, other professional associations of specialized groups like dentists, nurses, and others once in a while survey their members to collect a range of demographic and practice-related data.

The U.S. Bureau of the Census for the Bureau of Labor Statistics each month conducts a survey known as "The Current Population Survey (CPS)", which is a survey of about 60,000 households since 1940 and provides data on health insurance coverage, disability, and health care utilization. The survey is especially valuable in tracking the trends in health insurance coverage and health seeking behavior in the United States.

The Centers for Medicare and Medicaid Services sponsors the Medicare Current Beneficiary Survey (MCBS), which is a continuous, multi-purpose survey of a representative national sample of the Medicare beneficiaries since 1991 and collects information on health care utilization and expenditures (Centers for Medicare and Medicaid Services 2011).

Furthermore, many other US federal agencies periodically conduct or provide fund for surveys on health-related topics. These include the Bureau of Labor Statistics, the Census Bureau, the National Cancer Institute, the National Institute of Mental Health, the National Institute on Drug Abuse, the Social Security Administration, and the Veterans Administration, among others.

In addition to governmental agencies, many private non-profit and for-profit institutions conduct or sponsor such HSR. These include but not limited to: the Robert Wood Johnson Foundation, the Commonwealth Fund, and the Kaiser Family Foundation. They have sponsored national or statewide surveys dealing with various aspects of health and health care system performance.

C. Others Countries

All developed and some of the developing countries have conducted their own surveys to measure their populations' health and health care practices. A recent example is "The State of Men's Health in Europe" issued by the European Commission. This report demonstrates striking differences in health behavior and outcomes between men that are strongly associated with their biology, culture, and socioeconomic conditions. The report describes the main health issues of more than 290 million men and boys of the 27 member states of the European Union, the four states of the European Free Trade Association, and three EU candidate countries (European Commission 2011).

1.1.4. Historical Background

The recent history of HSR as we know it today has started about half a century ago in the 1950s and 1960s when grants were offered to study the efficacy hospitals. But if we go back a little more, we can regard Florence Nightingale as the first health service researcher. She was a nurse who served during the Crimean Wars in the 1850s and noticed that solders were dying more of infectious diseases than in the battle. She collected data systematically and analyzed it and was able to reduce the death rate from 42% to 2% by providing better care and hygiene (Stolley *et al.* 1995).

Another earlier report which was not directly related to health system but to medical education, had a great impact on the quality of care and raised the platform by recommending very strict standard for US medical schools. Up to the turn of the twentieth century, the medical schools in the US were in great variation. Some had very loose standards for admission and coursework. The American Medical Association (AMA) in collaboration with Carnegie Foundation (Appendix I) in 1908 recruited Abraham Flexner for this assessment task. During the next two years, Flexner surveyed all the 155 medical schools that were existing at that time and submitted his report. In his report, He examined five principle areas at each school: admission requirements, size and training of the faculty, size of endowment and tuition, quality of laboratories, and availability of a teaching hospital whose physicians and surgeons would serve as clinical teachers (Cox *et al.* 2006).

This was a landmark report and greatly influenced American medical education. Many schools fell short of the standard recommended in the report, and following to its

publication; nearly half of such schools were closed or merged. Only few schools received praise among them was the Johns Hopkins School and hospital which was described as a "model for medical education". Many aspects of the present-day American medical education and profession come from the Flexner Report and its aftermath (Beck 2004). Although this report did not directly address the health care system but it had a great impact on it because it called for high standards and created an environment for investigating and research in to the health care delivery system in general.

During the 1920s, 1930 and 1940s, several influential reports were published by several committees and Public Health Services to contain health cost that had a significant effect on the delivery and organization of health care in the United States. In 1968, the National Center for Health Service Research and Development was established to investigate problems with cost, accessibility and quality of care in US health institutions. In 1989, the Agency for Healthcare Research and Quality (AHRQ) was established as a federal agency with a broader mission to draw attention to variations in medical practice, patient outcomes of care, and the dissemination of evidence-based guidelines for the treatment of common disorders. The AHRQ now also is entitled to provide leadership for the field, investing in methods for quality measurement, development of patient safety methods, and health information technology (e.g., electronic health records and decision support systems). Currently, several federal agencies are interested and are funding research in the field of HSR, these include: in addition to AHRQ, the U.S. Department of Veterans Affairs, Centers for Disease Control and Prevention (CDC), the National Institutes of Health, CMS, and others (Aday *et al.* 2006; Steinwachs *et al.* 2008).

On the international level, The WHO was late in catching up. Since its established immediate following World War II, WHO was busy with diseases that had greater impact on the developing countries. Their main focus was on a wide-range of disease prevention and control efforts like mass campaigns against endemic syphilis, leprosy, yaws and trachoma (McCarthy 2002). In the 1950s, WHO started a big campaign to 'eradicate' malaria. After two decades of intense work, this campaign was not successful and the goal was changed to controlling malaria rather than elimination. WHO gained a boost for its work when they were able to eradicate smallpox in 1977 (Fenner *et al.* 1988).

Success in experimentation with Primary Health Care by several countries led WHO to advocate for such an approach globally. It also built on the successes and experiments of China, Cuba, Guatemala, Indonesia, Niger, the United Republic of Tanzania, and Maharashtra State in India. Some of these countries, and others such as Costa Rica and Sri Lanka, were able to achieve exceptional health outcomes at relatively little cost, adding 15 to 20 years to life expectancy at birth in just two decades. These were the key elements, along with an emphasis on public health measures relative to clinical care, prevention relative to cure, essential drugs, and education of the public by community health workers. By adopting primary health care as the strategy for achieving the goal of "Health for All" at the Joint WHO/UNICEF International Conference on Primary Health Care held at Alma-Ata, Kazakhstan in 1978, WHO revived efforts to bring basic health care to people everywhere.

This was the first time that WHO made an indirect reference to the importance of health systems in the health outcome of people. In 2000, WHO published its annual report that was titled: Health Systems: Improving Performance. This was a landmark report that compared and ranked the relative performance of all the 192 member countries. They based their ranking a composite index that was based on three components: overall health measured as disability adjusted life-years (DALY); system responsiveness to non-medical needs of the population and fair financial burden and distribution (WHO 2000). Although this report was one of the most controversial ones issued by WHO, but it was a great step forward in emphasizing the importance of health system and system stewardship in the overall performance of health systems.

1.2. Health Seeking Behavior

Health related behavior is one of the most essential components of public health. It is importance has been known since antiquity but interest in this issue renewed especially in the past century since the "great sanitary awakening". Health related behavior was fundamental in reducing the communicable diseases from the developed countries and nowadays it is the most critical factor in reducing the current epidemic of non-communicable diseases. Additionally, the resurgence of communicable diseases like tuberculosis, and emergence of new ones like HIV are also closely related to human

behavior. Health behavior is related to almost all causes of diseases especially the leading ones (Schoenbach *et al.* 2000; Heggenhougen 2008; WHO 2008a).

During the last few decades, there has been a remarkable increase in interest in preventing diseases through healthy behavior and lifestyle change mainly due to the changing pattern of diseases from communicable to non-communicable, increased number of elderly, and the soaring cost of curative health services (Heggenhougen 2008).

Health behavior is a multi-disciplinary field that takes from many scientific fields like: psychology, sociology, education, public health, epidemiology, and anthropology. In order to better understand the concept of HSB, the underlying concepts will be presented before proceeding to the details about the concept of HSB itself.

1.2.1. Definitions

In order to understand the concept of health seeking behavior, first a definition of the underlying concepts will be presented followed by the definition of HSB itself.

Health

The most commonly quote definition for health is the definition formulated by WHO and put into its constitution in 1948: "health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity". Although this definition has been subjected to many criticisms for not been practical and cannot be measured, still it is the most widely cited definition (WHO 2000).

The most widely criticized term in the definition is: "complete" because it is absolute and not achievable (Awofeso 2005). Additionally, nowadays many people in both developed as well as developing countries live much longer due to better overall living standards in addition to better health services than before six decades ago many with having chronic diseases. Many argue that this definition is no longer useful and may be even counterproductive because almost every human being will be classified as ill and contribute to medicalization of the community (Godlee 2011). Recently, there have been many calls to redefine health that will be more practical (Saracci 1997; Jadad *et al.* 2008; Huber *et al.* 2011; Shilton *et al.* 2011).

In a recent attempt, health was defined by a group of experts as "the ability to adapt and to self manage in the face of physical, mental and social challenges" (Huber *et al.* 2011). This definition emphasizes the role of the human capacity to cope autonomously with life's ever changing physical, emotional, and social challenges and to function with fulfillment and a feeling of wellbeing with a chronic disease or disability. Health is the goal of health care services and it is definition is important because we need to measure it.

On the other hand, the definition and value of health may be different to different people. Culture of people has profound effect on the way they define and value their health. The same applies for illness, here also culture has even more effect on how people define what illness is and how to deal with it (Sobralske 2004). That is why researches about health seeking behavior may have very different results in different communities. For example: in some communities, if someone is expressing that he or she is not feeling well, they may be interpreted as shirking from responsibility at and considered lazy, while in other culture even a trivial illness may get the attention of the whole family members. That is why it is necessary for health professionals and health service researchers to be culturally competent and know how different people perceive health and illness.

Health Behavior

In its broadest dictionary sense, behavior is defined as "actions or reactions of a person or animal in response to external or internal stimuli" (American Heritage Dictionary of the English Language 2000). Here we have to make a clear distinction between "health behavior" in general and "health seeking behavior" or "illness behavior" which is the focus of this study (WHO 1995).

Health behavior was defined by Gochman (1997) as "those personal attributes such as beliefs, expectations, motives, values, perceptions, and other cognitive elements; personality characteristics, including affective and emotional states and traits; and overt behavior patterns, actions, and habits that relate to health maintenance, to health restoration, and to health improvement". Although this definition is one of the most widely-cited definitions in literature, but it adds non-action attributes to the definition like beliefs, expectations and other cognitive and affective elements. This does not conform to

the dictionary definition of the term which denotes action and movement. Some authors refer to the latter concept as "overt health behavior" (Glanz *et al.* 2008).

Kasl and Cobb in their seminal work on health-related behavior (Kasl *et al.* 1966b; Kasl *et al.* 1966a; Becker *et al.* 1977) have further categorized the types of health behavior into three types:

- Preventive health behavior: refers to any activity that an individual is performing with the aim of protecting themselves from possible illness or controlling further progress. Examples of preventive health behavior include: doing regular checkup, using car seat-belts, eating healthy food, or doing physical exercise to get fit.

- Illness behavior: refers any activity that an individual is performing who thinks that he or she is ill with the aim of restoring their state of health. This includes "the way in which symptoms are perceived, evaluated, and acted upon by a person who recognizes some pain, discomfort or other signs of organic malfunction" (Mechanic *et al.* 1961). This is also known as "health seeking behavior", health care seeking behavior", or "help seeking behavior".

- Sick-role behavior: refers to any activity that an individual is performing who believes he or she is ill, with the aim of getting better. Examples include: compliance with treatment. Assuming this role also leads to partial exemption from usual responsibilities. When becoming ill, people do not simply abandon usual social roles but they usually replace it with a new one: the sick-role, which is "characterized by certain exemptions, rights, and obligations, and it is shaped by the society, groups, and cultural tradition to which the sick person belongs" (Becker *et al.* 1977).

In addition to the above definition by Mechanic, there are other similar but not identical definitions of the concept of HSB.

As a nursing outcome from the Nursing Outcomes Classification (NOC), HSB has been defined as: "personal actions to promote optimal wellness, recovery, and rehabilitation" (Moorhead *et al.* 2004).

Another definition, which is based on Kasl and Cobb's (1966a & 1966b) definition of illness behavior, defines HSB as: "any activity undertaken by individuals who perceive themselves to have a health problem or to be ill for the purpose of finding an appropriate remedy". This is in contrast to the general definition of health behavior, define as "any activity undertaken by individuals who see themselves as healthy for the purpose of preventing disease or detecting it in an asymptomatic stage" (Ward *et al.* 1997).

Another definition: "illness behavior refers to the way in which people define and interpret their symptoms and the actions they take in seeking help" (Gabe *et al.* 2004).

Another definition which is based on the work of Chrisman (1977) defines health care seeking as "the decisions made and the steps taken when people perceive they needs help to solve a health problem or for intervention with an illness" (Sobralske 2004).

Suchman, who is one of the pioneers in health behavior research, defines health care seeking behavior as "the process of successive decision-making based on the evaluation of symptoms, where a cause for the symptoms is interpreted, a decision is made whether to seek and take treatment, and a specific type of treatment is determined" (Suchman 1965).

The Dictionary of Medical Sociology defines help seeking behavior as based on Suchman (1966) as " that part of the illness process that involves efforts to access formal medical service providers, especially physicians, when one is ill or otherwise has been defined as sick (Suchman 1966). From a behavioral perspective, help seeking concerns the issue of which circumstances (biological as well as psychosocial) lead an individual to seek out a physician or alternative practitioner. From a structural perspective, help seeking is an issue of medical care access; that is, what behavioral, organizational, and financial circumstances facilitate or inhibit the receipt of health care services" (Cockerham *et al.* 1997).

The above definition does not make a clear distinction between the concept of health seeking behavior and that of health care utilization. Health care utilization, as the name implies, is only concerned with the use of the formal health services while the concept of health seeking behavior is wider and includes any action taken by the individual to restore his or her health. This may include: self-treatment, use of alternative medicine, or even

resting in bed without taking any medicine and waiting for the body immune system to take action.

1.2.2. Determinants

Health seeking behavior is a complex decision-making process that is the result of various internal and external factors. Better understanding the factor that affect this decision making process is essential for planning and implementing effective public health programs and interventions. Many theories and models have been suggested to understand health seeking behavior and its determinants. These models and theories differ in some aspects and have some common features. Some are suggested to understand specific populations in specific circumstances like immigrants while others have try to model the behavior of the general population (Glanz *et al.* 2008).

The idea that providing people with relevant knowledge about what causes illnesses will bring in changes in health behavior has been the basic premise for most health promotion programs worldwide. However, it has been increasingly recognized that providing knowledge and education alone is not enough to cause a favorable change in health behavior (MacKian 2003).

In general, these theories and models fall into two main groups:

- Theories and models that try to predict and explain health related behavior and
- Theories and models that try to change health related behavior.

Predictive and explanatory theories and models try to recognize factors that affect the health related behavior and thus be able to predict, to some degree of accuracy, who is more or less likely to exhibit certain behavior in response to illness or another health related stimulus. On the other hand, the main focus of theories and models that try to change health related behavior are on the change process detailing the stages that an individual is experiencing or going through in that process. Although these two categories of health related behavior are different area of focus but they complement each other. For example, if we can explain why some people are not using the primary health centers for their primary care services then we can make use of this information for better planning and improving of such services and then change the behavior of them. Further to the

above grouping, these theories and model have been divided into three main categories (Heggenhougen 2008):

- Individual level theories and model: their main focus is on individual attributes like knowledge and attitudes;

- Interpersonal level theories and model: their main focus is on social factors such as social norms or social support; and

- Structural or environmental level theories and models: their main focus is on factors outside the human being including access to resources, laws, and policies.

Based on reviews by Glanz *et al*. (2008), who have published several review articles on health related theories, below is a summary of these theories:

- Health Belief Model: this model proposes that health related behavior depends on how the individual believes that the outcomes of an illness or other possible health threats are influenced by the possible treatment and the overall cost-benefit ratio based on perceived susceptibility, perceived severity, perceived barriers, and perceived benefits. The model claims that people are more likely to take action when they *believe* that the threat is real, have severe consequences and the suggested intervention outweighs the cost. This model was original suggested by Irwin Rosenstock in 1966 to explain the reasons that make people decline from utilizing the preventive health service like regular checkup and vaccinations.

- Theory of Reasoned Action: this model proposes that health related behavior closely relates to behavioral intention which is a function of both attitude and subjective norms. Attitudes are the sum of beliefs about the end result of a particular behavior weighted by evaluations of these beliefs while subjective norms are the influence of people on his/her behavioral intentions, what they think about the behavior, weighted by how much the individual cares about their opinion. This model was developed by Icek Azjen and Martin Fishbein in 1975 as a result of failure of the existing theories in predicting and correlating attitude and behavior (Ajzen 1985).

- Theory of Planned Behavior: this theory is an extension of the previous theory that was improved by the same author (Ajzen 1985). This theory proposes that

personal attitude, subjective norms, and perceived behavioral control determine an individual's behavioral intention and therefore their behavior. The addition from the previous theory is the concept of "perceived behavioral control" which refers to the way an individual perceives a specific behavior to be easy or difficult.

- Social Cognitive Theory: this theory proposes that people are in continuous interaction with their environment and that they not only learn from their own experiences but also by observing the behavior of other people. According to this model, three factors affect individual's behavior: self-efficacy, personal goals and perceived advantage. Self-efficacy is similar to the concept of "perceived behavior control" in theory of planned behavior. This theory was developed by Bandua in 1986.

- Stages of Change Model: also known as Trans-theoretical Model, proposes that behavior change is a process made of a series of events. According to this theory, people are at different levels of readiness and different stages for behavior change which include: pre-contemplation (not thinking about change), contemplation (thinking about change), preparation (getting ready), action (taking specific actions), maintenance, and termination. For example, people who do not believe in standard medical care and use alternative medicine for most of illnesses will need a different approach from people who are doing doctor shopping. This theory is relatively recent and was developed by James Prochaska in 1977 based on the analysis of different relevant theories of behavior change, that is why it is called "trans-theoretical" (Glanz *et al.* 2008).

From the above brief review, we can see that the health belief model, the theory of reasoned action, and the theory of planned behavior can be regarded as predictive or explanatory theories of individual health behavior. By contrast, the social cognitive theory, considers behavior as a dynamic process, and provides a more holistic approach to behavior change. On the other hand, the main of emphasis of stages of change model is on the behavior change process. As we can see, there is a clear overlap between the various theories of health-related behavior.

Review of relevant literature about the determinants of health seeking behavior show that these determinants can be grouped under these headings: geographical, social, economic, cultural, and organizational (Table 1-1).

Table 1-1: Grouping of determinants of health seeking behavior across studies

Author	Geographical	Social	Economic	Cultural	Organisational
Kloos (1990)	Geographical	Socio-economic		Cultural	
Yesudian (1988)		Demographic	Economic	Cultural	Organisational
Leslie (1989)		User factors			Service factors
Anderson (1995)	Environmental	Predisposing and enabling factors			Health system

Table 1-2 shows the breakdown of the above groups into detailed factors that affect the health seeking behavior of individuals in addition to spheres of influence: formal, informal and infrastructure (MacKian 2003).

Table 1-2: Breakdown of determinants of health seeking behavior

Category	Determinant	Details	Sphere
Cultural	Status of women	Elements of patriarchy	'Cultural propriety'
Social	Age and sex		
Socioeconomic	Household resources	Education level Maternal occupation Marital status Economic status	*informal*
Economic	Costs of care	Treatment Travel Time	Physical
	Type and severity of illness		
Geographical	Distance and physical access		*infrastructure*
Organisational	Perceived quality	Standard of drugs Standard of equipment Competence of staff Attitudes of staff Interpersonal process	Technical Staffing Interpersonal *formal*

When studying the determinants of health seeking behavior, we have to be cautious about the differences between developed and developing countries. For examples, in studies conducted in the United States, many spatial and behavioral factors were significantly related to health seeking behavior and health care utilization such as having driver's license, distance from health service, age, sex, ethnicity, income, and type of illness. While in Pakistan, women are not able to go alone to another village and have to be accompanied by her mother-in-law, husband or a relative (Shaikh *et al.* 2005; Manzoor *et al.* 2009).

Other determinants of health seeking behavior in developing countries include: socioeconomic status, physical accessibility, cultural beliefs and perceptions, women's autonomy, literacy level of mothers, family size, disease pattern and the health care system, and cost of care. Since men are decision makers and in control of all the resources, they decide when and where woman should seek health care. In India, It was noted that the health seeking behavior of women is affected by their age, education, income, occupation and role in family. Additionally, it was shown that the type of symptoms experienced and the perceived severity and the number of days of illness are major determinants of health seeking behavior and choice of care provider. For example, in case of mild illnesses like simple fever without other associate symptoms, self-treatment or folk medicine are more likely to be used while for severe illnesses, they usually resort to formal medical services (Shaikh *et al.* 2008; Manzoor *et al.* 2009).

Other elements of complexity of the health seeking behavior in developing countries are gender and illness stigmatization. Gender interacts with both social and economic factors that affect the health seeking behavior of individuals in the community. Studies show that in many developed countries, parents have different health seeking behavior with regard to the illness of their children if they male or female. Male children are more likely to be taken to formal health care provider and more promptly while it is more common for a female child to be treated by home remedies or traditional healers (Heggenhougen 2008).

On the other hand, many illness have severe social stigma associated with them that makes the individual be ashamed to declare that he or she is ill thus leading to delay in seeking health care and leasing to complications and other unwanted consequences. Diseases that are linked with high degrees of social stigma in most developing countries

and may be some developed countries by both the community as well as health workers include: mental health problems, tuberculosis (TB), sexually-transmitted diseases (STD), and HIV. In some countries with high prevalence of both TB and HIV, people with TB have as much stigmatization as HIV because of their high degree of association. It is well-known that stigmatization negatively affects the health seeking behavior and thus the course of illness. This will make the individual to choose silence to avoid shame thus leading to further spread of the diseases making the control program less effective (Heggenhougen 2008; Shaikh *et al.* 2008; Manzoor *et al.* 2009).

1.2.3. Review of Literature

In this review, some examples will be shown from the developed countries then move to developing countries followed by research done in the neighboring countries and finally review of literature in our country with special emphasis on Kurdistan region and Erbil city. In addition to review according to geographical location, another review will follow that will focus on HSB in relation to some specific disease like TB and STS, as well as it is relation to specific subpopulations like women, ethnic minorities, old age, immigrants…

Health service researchers have long been interested to know what factors influence the use of health service and why people adopt different behaviors with regard to their health state. Research about health behavior has started more than half a century ago in the developed countries but interest in such studies in developing countries has been gaining momentum only in the past two decades and it is just starting in our country.

There are two main differences between the studies on HSB in developed and developing countries. First, in developed countries, recent literature about HSB is either about a disease-specific condition with narrow research questions, population or topic because general research about HSB has started at least few decades ago. Secondly, up to now, almost all these studies have been conducted as national surveys by governmental institutions or by UN agencies as in our country and not yet by academics.

Up to a recent time, the main focus in the developing countries for better use of health care services was on the supply-side measures likes building more infrastructure, human resource development, procurement of more pharmaceutical and equipments. These

interventions had limited success that is why there has been an increased interest in the role of the demand-side. The availability of multiple options for the patient when seeking health care services adds to the complexity as in our country where there has been an increase role of private sector in addition to the already existing but dwindling role public health institutions. The same is true in many other countries that made a transition from previously centralized public health system to a wider variety with emphasis on market-orient private sector as in Eastern Europe (MacKian 2003).

It is customary to divide HSB studies into two major groups: health seeking behavior studies and health care seeking behavior studies, the latter also know as health care utilization research that try to investigate the factors that affect the use of formal health care services in both positive and negative ways while the former tries to analyze more generally the factors affecting perception of illness and health belief that includes home care, self medication and the use of alternative medicine in addition to the use of formal health care system. These two types of studies are not mutually exclusive but can be complementary to each other (Grundy *et al.* 2010).

There are several methods that have been employed in conducting HSB studies, these include: household survey as in this study or facility-based surveys. Additionally, these studies can be done using quantitative or qualitative methods which uses ethnographic methodology.

Household surveys are most widely used method of HSB studies, sometimes as part of knowledge, attitude and practice studies (KAP). These studies are usually focus on a specific disease and more commonly in a particular subpopulation using structures questionnaires for interview and commonly having a sample size of 1000-2000 respondents (Grundy *et al.* 2010). These studies provide better quality of data compare to facility-based studies but are less convenient to do. The surveyor must choose an appropriate time to go to each household, knocking at their door and ask them to have some time for filling the questionnaire. KAP studies have limitations when used for HSB studies; it usually provides a descriptive picture of patterns of behavior but falling short of investigating the reasons behind the health seeking behavior. Another limitation of KAP studies is the fact that KAP studies are base on the assumption that knowledge drives behavior but behavior is much more complex outcome that is influences by many other

factors like social context and immediate practical environment among others (Hausmann-Muela *et al.* 2003). Household surveys can be a good source of information on the prevalence and distribution of available therapeutic choices for a number of common conditions; it can also correlate socio-economic and spatial factors with health seeking behavior and recognize the reasons behind the choice of provider.

On the other hand, facility-based studies are more commonly used for the second type of study, i.e. health care seeking behavior or health care utilization studies. Patients are interviewed when they come to a health institution for some reason, usually while waiting for to be served or when finished and about to leave the facility. These studies have the advantage of being more convenient to do but have the possibility of missing the cases that stay at home during their illness, self-treat themselves or use alternative ways of treatment.

In addition to the above which usually uses quantitative methods, qualitative methods also have been widely used in HSB studies. These studies can also be household or facility-based but have a much smaller sample size usually in the range of dozens or less. Data collection is made through organizing focus group discussion or alternatively with a one respondent using a semi-structured questionnaire with some open ended questions that give more liberty for the responds to talk freely about their experience with the illness and the treatment choices. A specific interview method is widely adopted in such studies known as "illness narrative" where the patient is allowed to tell the story of his/her illness from the start to the end in their own words without much interruption apart from some guiding questions. Further to the above methods, some surveys combine both quantitative and qualitative methods (Moran 2006; Grundy *et al.* 2010).

The assumption that providing knowledge about the diseases and therapeutics choices to the patient or the population in general will directly affect the health and health seeking behavior has been the central tenet for the fields of health promotion and health education. However, recent studies are increasingly, in both developed and developing countries, show that such a relation is not as strong as it was thought of previously and that providing health knowledge on individual level is not enough alone to bring about change in health related behavior (MacKian 2003).

Health Seeking Behavior Studies in the USA

As have been mentioned earlier, researchers in USA have a long history with health seeking behavior studies. The main reason is the competitive nature of the health sector in this country. Some medical institution have interest in having more patients to maximize their profits as in the private sector while other public medical institutions are interested in reducing cost like Manage Care, Veteran Affairs, Medicaid and Medicare. That is why most medical institutions are sponsoring or conducting research about health seeking behavior of people to be able to predict and/or change these behaviors. On the other hand, because of the long history of health seeking behavior research in this country, recent studies are no long about general issues with regard to HSB but usually about very specific issues like HSB among ethnic minorities.

In his PhD dissertation, "Health-seeking behavior and health services use by Latino men in a rural Iowa community", MacNaughton (2006) draws attention to the existing disparities in morbidity and mortality among ethnic minorities like African Americans, American Indians, Alaska Natives, Pacific Islanders, and Hispanic population compared to the general population. Linked to these ethnic and racial disparities are ethnic and racial gaps in access to health care service and health seeking behavior. In his review of relevant literature, he concludes that access to health care services by Hispanic population is severely compromised but the reasons are not always consistent.

Although Hispanics are less likely to be insured compared to White Americans, still, disparities in access to health care services and their negative health seeking behavior are not always due to lack of health insurance but to a variety of other reasons including but not limited to: socioeconomic status, sex, language differences, economics status, migrant status, environmental exposure, lifestyle, male role in the family, the social concept of masculinity and position in the community. He concludes that Latino men's health seeking behavior is very variable and ranging from refusing formal health care, even when it is recommended by others, to self-treatment by over-the-counter medications, to local bodegas (Hispanic grocery stores that also sell medicinal herbs and icons) and bujas (witches), to traveling more than 2,250 km and returning to Mexico to receive health care, to fully using available local health care services (MacNaughton 2006; MacNaughton 2008a).

In another related study about the health seeking belief and behavior of Mexican American men, Sobralske (2004) concludes that gender greatly influences the health seeking behavior of Mexican Americans because being a man in this culture, contrary to White Americans, implies the ability to fulfill many cultural responsibilities to other family members, relatives, friends, colleagues at and the community at large. One manifestation of this male role is the belief that men should accept pain as part of life and thought that tolerating pain was part of being a man.

This interpretation of bearing pain as strength may lead some to delay seeking health care until the pain is not bearable. She further adds that the level of acculturation, although related but does not necessarily predict their health seeking behavior. Similar to the previous study, Sobralske confirms the wide range of therapeutic options used by Mexican Americans and many may combine consulting the doctor, going to the herbal shop, using home remedies, and receiving massages as treatment for their diseases but women were more likely to use folk medicine.

Bailey (1987) had studied the socio-cultural factors that affect the health seeking behavior among another group of US minorities: the African Americans. He shows that there was a noticeable rise in the use of outpatient department of hospitals especially by the poor and minority groups. In 1973, African Americans were twice more likely to use the outpatient department of hospitals in comparison to White Americans. He concludes that a variety of socio-cultural factors affect the health seeking behavior of Black Americans like attitude toward health and therapeutic options, believing in spiritualism, attitude to authorities, and the still existing effect of discrimination among others.

Health Seeking Behavior Studies in Some European Countries

Like in USA, health service research is in an advanced stage in Europe and other developed countries and their recent studies focus on specific problem in a much defined population.

In a recent study, Lasserson *et al* (2008) have studied the effect of general practice opening hours on health seeking behavior and delay in seeking medical care following a transient ischemic attack (TIA) and minor stroke and feasibility of assessment within 24 hours of the onset of symptoms in the United Kingdom. In this prospective study of

91,000 patients who were followed up between 2002 and 2006. They have found that only 1% of patients contact NHS Direct for advice while most of them delay seeking health care until their registered general practice is open resulting in long delays especially at weekend. The authors have concluded that the current opening hour of the general practitioners negatively affect the health seeking behavior following TIA and minor stroke and can result in delay in assessment as recent studies show that prompt management is crucial in reducing the risk of early recurrent stroke (Lasserson *et al.* 2008).

Another example of health seeking behavior in a specific population is the recent study from Norway about health care help seeking behavior among prisoners (Berg *et al.* 2011). Usually prisoners have a higher rate of physical as well as mental problems including anxiety, depression, sleep disturbance, and suicide compared to the general population. Despite higher rates of illness, incarcerated people usually underuse medical services. The researchers have found that sleep problems, drug use, sex, and older age were significantly associated with the utilization of the prison health services but no relation with ethnicity or educational status. They have also found significant differences between prison that was related to number of health staff but not to the size of the prison.

It is well-known that when medical doctors become ill, they do not follow the advices they give their patients but they would rather follow the existing norm within the medical culture which is self-treatment! In an interesting study about the health seeking behavior among medical doctors from Australia, Davidson *et al* (2003) have conducted their postal survey study with a sample of about 900 physicians and a response rate of 40% with the aim of investigating how medical doctors perceive the limits of self-treatment and the factors that affects such attitude and practice in three hypothetical situations.

Although self-treatment is not advised due to lack of objectivity but in reality most of them do it. Self-treatment among medical doctors includes diagnosing, treating, and prescribing "necessary" medicine for themselves. It may also include informally consulting some colleagues that is known as "corridor consultation" or self-referral to specialists. The authors have found that the majority (90%) of the doctors considered self-treatment to be acceptable in acute conditions but much less (25%) in case of chronic diseases. Another large proportion (90% among general practitioners and 83% among

specialists) thought that many doctors are reluctant to go to another doctor particularly for psychosocial problems. They conclude that the health seeking behavior of medical doctor is quite different from the general population and that the medical doctors perceive significant obstacles for seeking proper medical care (Davidson *et al.* 2003). That is why we have excluded medical professionals from this study because they need a study on their own.

Health Seeking Behavior Studies in Some Asian Countries

Research about health seeking behavior in Asia is abundant and has more common features when compared to community. For the same reason, focus will be more on studies from Asia, Africa and neighboring countries in this review of literature. Many of such studies have been initiated by researchers from developed countries who either have collaborating centers as the case is with International Centre for Diarrheal Disease Research, Bangladesh (ICDDR,B) in Bangladesh or similar projects in India that were established through collaboration with Johns Hopkins School of Public Health (JHSPH) as a field research center (ICDDRB 2011; JHSPH 2011) or the researcher from the these countries were assisted by others from developed countries. Some of these countries have another common feature with our country which is the fact that they are post-conflict countries like Cambodia, Armenia, and Afghanistan.

Ahmed *et al* (2000) have studied the role socio-economic development on health seeking behavior in a sample of households that was conducted as part of the activities of BRAC, which is a large local NGO that was established with the goal of alleviating poverty, and ICDDR,B with special focus on the gender role. They have compared households that were already part of the integrated rural development program initiated by BRAC and households that were eligible but not part of the program. The researchers have found that there were significant differences between the two groups when comparing their health seeking behavior as well as their overall rate of morbidity. As might be expected, the development group seems to have been benefitted from the three year programs health and skill development and report much less overall morbidity.

As might be expected, the researchers found that BRAC members used qualified healthcare services more than the poor non-members. But surprisingly, their use of home remedies and traditional care and paraprofessional healthcare services was also high, even

higher than the use of non-BRAC members. The explanation given by the researchers is that the positive impact of the health education program that is part of the integrated rural development program for the BRAC members had enabled them to be able to make their own decision about the health seeking behavior and they may be able to recognize early symptoms of common illnesses and deal with the situation accordingly without resorting to qualified healthcare services. The researchers also observed gender differences in health seeking behavior between the two groups, as expected, females the BRAC members were more likely to use qualified healthcare services (Ahmed *et al.* 2000). This study is especially interesting because it has some common features with the community in Iraq in general and more specifically Kurdistan region: a very rapid socioeconomic development is witnessed in the region that will affect their health seeking behavior.

In his PhD dissertation, Ahmed (2005) explores the health-seeking behavior of disadvantaged populations in rural Bangladesh. He found that the probability of access to professional healthcare was higher for men than for women. The same is true when comparing the micro-credit based integrated intervention (as in BRAC members mentioned above) population and those who were part of such programs. He also found that the majority of disadvantaged populations (60-70%) were resorting to unqualified healthcare providers like untrained street drug dealer as it was common but seen less frequently nowadays in Erbil city. He concludes that poverty was the most significant predictor of health seeking behavior as people from poor communities were almost twice more likely to use self-treatment when compared with families of higher socioeconomic status.

The findings from a national survey about maternal health care seeking behavior in Bangladesh which was conducted to reduce the relatively high maternal mortality as part of the efforts to meet the Millennium Development Goals, showed that the use of antenatal care is increasing but still low when compared with standards. The results also show low rates of delivery with the assistant of skilled healthcare provider. In case of life-threatening complications, only one-third were able to make use of qualified health services although half of them experienced such complications. In case of time-sensitive complication when a small delay may be the difference between life and death like convulsions and profuse hemorrhage, more than 75% either did not seek any medical care

or resorted to unqualified healthcare providers and main reason for such behavior was the high cost professional healthcare services (Koenig *et al.* 2007).

In a recent study, Ruhul *et al* (2010) have explored the socioeconomic factors differentiating maternal and child health-seeking behavior in rural Bangladesh. They found as in the previous studies that the socioeconomic status was the major determining factor in the health seeking behavior. Mothers of relatively high socioeconomic status were more likely to use modern professional healthcare services for antenatal care, delivery of the baby as well as postnatal care and child care compared to the poor socioeconomic families. They found that other factors like age, level of education and status of women were less important in this decision making process.

In her PhD dissertation, Moran (2006) studied rural Bangladeshi women's perceptions and healthcare seeking behavior in relation to maternal morbidity. She reports only small portion of women seek professional healthcare services despite the fact that a much larger proportion reported morbidities related to maternal health even for complications thought to be serious. Among those who sought healthcare, traditional healers and pharmacy shops were the most commonly utilized.

Analyzing the health and demographic surveillance system data collected between 1987 and 2005 by the ICDDR,B in Matlab, Bangladesh, which included: 59,165 pregnancies, 173 maternal deaths, 1661 stillbirths and 1418 early neonatal deaths, Ronsmans *et al* (2010) found that the use of skilled birth attend has increased from 5% to 53%. Maternal mortality was much higher (32 times) in those did seek emergency obstetric care which means only the very serious cases were seeking such care and mostly at a last moment but this relation became much less with time as more women were seeking professional healthcare services. In conclusion, when reviewing the researches from Bangladesh, many common features can be discerned between the Bangladeshi and Iraqi communities, health systems and the health seeking behavior. Still there are unregulated street drug dealers, pharmacy shops, para-professional and traditional care that is frequented by many people for their relatively low cost and convenience.

In his pithy titled ethnographic study: "Where do they go, whom do they consult, and why?", Shaikh *et al* (2008) tries to answer these questions about health seeking behavior of the northern areas of Pakistan. The researchers found that people in these area used

modern healthcare services for common illnesses but on the other hand, faith healers were also resorted to frequently as well as traditional healers. One of the study participants commented: "We go to the faith healer mostly because the health center is located far away from our village, and the government dispensary is open during fixed hours. If it is open, medicines are not available." They conclude that one of the important reason people resort to traditional and faith healer is geographic proximity, convenience and the fact that they are available almost any time in addition to relatively low cost. The same reason may apply to the relative high use of nurse shops in Erbil city.

With regard to type of illness, they found that people resort to faith healer more for psychiatric illness because they think although modern healthcare provide some immediate benefits, it fails in the long run (Shaikh *et al.* 2008).

In another study, Shaikh *et al* (2005), analyze the implications of health seeking behavior for policy makers. He concludes that developing effective health policies that will lead to efficient, effective, acceptable, cost-effective, affordable and accessible services, we have to properly study and understand the factor behind the health seeking behavior in the community both for public as well as private healthcare services.

Peng *et al* (2010) studied the factors that influence the health seeking behavior among migrant workers in the capital city of China, Beijing. The authors argue that migrant workers are a vulnerable group and usually live in substandard living conditions. In their study of 2,478 workers who were mostly young of both sexes, they have found that only 4.8% did consult a healthcare provider in the past two week. This constituted only about one third (36.4%) of those who were become ill and another third (33.3%) resorted to self-treatment while the last third (30.3%) took no measures and waited passively. They also found that the health seeking behavior of these workers was significantly associated with their insurance coverage which is a proxy for ability to pay medical costs.

Malanyaon (1994) have conducted a study about the health seeking behavior of urban poor communities in Philippines. She with her research team has found that health was one of the main priorities among these communities although their behavior showed their preference of curative and crisis-oriented rather than preventive approach. They preferred qualified medical doctors over other healthcare providers like traditional healers (4.4%) so most of them (50%) consulted a medical doctor in case of illness but some preferred

self-treatment (10%) while others sought advice from friends and relatives (26%) and minority used traditional healthcare (4.4%). They tended to use traditional healers as a last resort option in case of hopeless illness or due to inability to pay. They also preferred private healthcare providers and facilities compared to government-run facilities because of their perceived inadequacy and incompetency.

Coming to the post-conflict countries, the negative effect of war and political conflicts cannot be overemphasized. In many countries including Iraq, the public health system was almost totally collapsed as a result of long years of war and political instability (Alwan 2004). To give a rough picture, in 1987 alone, more than 2 million people were killed in over 20 countries. The United Nations High Commissioner for Refugees (UNHCR) stated in the 1993 State of the World's Refugees report that "As the year began, the number forced to leave their countries for fear of persecution and violence had risen to a total of 18.2 million. To reach this painful sum, an average of nearly 10,000 people a day became refugees - every single day throughout the previous year" (Dorian 2002).

Cambodia is a country with one of the worst hit with armed conflicts that went through over 30 years of civil war leaving the national health system almost non-existing. Yanagisawa *et al* (2004) compare the health seeking behavior between different socioeconomic groups in Cambodia following their health system reform through a sample of 257 randomly selected families with 1547 family members. They found that overall, 43.8% experienced an episode of illness in the previous month. They also found that most people (63.6% and 71.7% for low and high socioeconomic status respectively) used traditional home remedies when becoming ill followed by self-treatment (43.2% for the low and 48.3% for the high socioeconomic status) if not improving. People of low socioeconomic status made use of the public healthcare (13.6%) because of their affordability compared to people of higher socioeconomic status (4.9%) while the figure for private sector were 9.1% and 10.0% respectively. After the initial phase of actions, 39.7% reported complete absence of symptoms while 53.2% resorted to further actions. Self-treatment was the most widespread practice as the second action if not improved (30.0% for low and 33.7% for higher socioeconomic status) followed by resorting to private healthcare providers (30.0% for low and 37.2% for higher socioeconomic status).

In another post-conflict country, Dorian (2002), in her PhD dissertation, studied the health seeking behavior for curative and preventive health services for children in the war-torn city of Nagorno Karabagh. She found that perceived severity of illness (e.g. frequency, duration and consistency of passed stool) by mother was the most important factors in seeking healthcare. Mother age also played a great role in the decision making process, children of younger mothers of 30 years and had less opportunity to be treated by a qualified healthcare provider.

In Afghanistan, another war-torn country, Steinhardt et al (2009) studied the effect of wealth status on health care seeking behavior and health expenditure. They found that like in most other developing countries, people with low socioeconomic status tend to have higher levels of morbidity and mortality but they tend to seek health care less frequently and make less use of healthcare services compare to people with higher socioeconomic status. Overall, almost one-fifth (19%) reported at least one episode of an illness in the past 30 days. Children were most vulnerable with more than double (32.1%) reported incidence of illness in under 5 years old children during the same period compared to the rest of the sample (14.8%) with no statistically significant different between different socioeconomic groups. Overall, diarrhea was the most commonly reported illness (30.1%) followed by febrile illness (22.8% and respiratory diseases (18.4%). The most common utilized source of healthcare was the nearest public health center with 52.6% of the all those seeking healthcare followed by private doctors (26.2%). Only a minority (1.9%) resorted to traditional healers. Those in the higher socioeconomic quintile were more likely to use the private providers (30.7%) than those in the lower quintile (22.2%) and the figures become inversed for the use of public health centers (41.9% and 61.6% for lower and higher socioeconomic quintiles).

Health Seeking Behavior Studies in Some African Countries

Pronyk et al (2001) studied the health seeking behavior of sample of 298 tuberculous patients in rural South Africa, a disease which reach epidemic proportion in this country mainly due to its association with HIV. They found that the median total delay in seeking proper healthcare and hospitalization was 10 weeks, most of it due improper decision making by the patient and not due to service provider. Most patients initially resorted to public hospitals (41%) or public clinics (31%) and less frequently to traditional healers

(15%) and private doctors (13%). They researcher conclude that this long delay not only contributes to worse outcome for the patients but also it is a public health risk due to longer time of infectiousness of these patients and higher possibility of spreading the disease.

In a similar effort, Tasew *et al* (2006) conducted a similar study in Ethiopia to tackle this common and potentially risky behavior in a sample of 237 patients. In their study, "Delays and care seeking behavior among tuberculosis patients in Tigray of northern Ethiopia", they found that the median delay for seeking necessary health services was 90 days in smear positive pulmonary tuberculosis. They also found that delayed in first consultation was significantly more in patients with lower education level and those older than 35 years old.

Still in Ethiopia, Warren (2010) studies the health seeking behavior and community perception for care of the newborn. They report that according to traditional lore, mothers and their newborn baby have to stay at home and enjoy a relative rest for forty days after childbirth. May mothers still prefer traditional healers in comparison to qualified healthcare provider for the care of their newborn as well as themselves mainly due to traditional and cultural beliefs but also affordability and easy access play a role in this health seeking decision-making process.

Similar to above, the role of mothers was assessed by Charles *et al* (2008) in the health seeking behavior and decision making process in case of childhood febrile illness in Nigeria. They found that in 80.0% of cases, the mother was able to recognize the febrile illness in the child while fathers were able to do so in only 8.3% of cases followed by grandparents (5.8%) and a similar proportion by other members of family. As the initial treatment, almost all the families reported using simple home remedies like herbs while 55.0% reported using medicine available at home or bought from pharmacy without prescription followed by seeking help at a public health center (5.8%). When not showing signs of improvement, about a fifth (19.1%) continued with home remedies while a greater proportion used medicines (62.8%) or resorted to a nearby health center (18.1%).

In the same context, Gilroy (2007) in her PhD dissertation studied patterns of healthcare seeking and treatment for sick children in Bougouni district in Mali. She reports that utilization of public medical facilities is low while the use of unauthorized private sector

is relatively high and such a decision making process is influenced by caretakers' education level, socioeconomic status, geographical proximity from the health facility and perceived severity of child's illness. The most common initial source of healthcare was small shop or ambulatory vendors (31%) followed by public health centers (15%).

Health Seeking Behavior Studies in Some Neighboring Countries

Although it is necessary to include studies conducted in diverse and remote countries in the literature review but the ones most useful for close comparison are the neighboring countries as we share many cultural and traditional values with them.

Starting with Turkey, Ateşkan *et al* (2000) explored the health seeking behavior among elderly with urinary incontinence in their study: "Urinary incontinence among the elderly people of Turkey: prevalence, clinical types and health-care seeking". They have reported from a sample of 2000 patients of 65 years and older that the prevalence of urinary incontinence was 44.2% (57.1% for women and 21.5% for men). Overall, only 12.2% sought medical help for their condition with not statistically significant different between the two sexes but seeking medical help was proportional to the severity of the condition. The reason for not seeking medical help among women was feeling embarrassed (52.2%) or thinking that this was a natural aging process and not a disease that needs medical attention (49.8%), the figures for men were 28.6% and 71.4% respectively. The authors conclude by drawing attention to the very high prevalence of urinary incontinence especially in females contrasted by very low percentage seeking proper medical help.

The predictors of health seeking behavior in obsessive-compulsive disorder were studied by Beşiroğlu *et al* (2004) in Turkey and they found that the majority of obsessive-compulsive disorder patients do not seek proper medical help. They compared a group of patients who sought medical help with a similar group that did do so and they found out that there was not statistically significant differences between the socio-demographic characteristics of the two groups. Those who did not seek medical help had a less severe form of the illness compared to those who sought medical help but they also had poorer degree of insight. They authors report that predictors of seeking medical help were found to be higher degree of insight and level of independence.

Another study about delay in seeking proper medical help in tuberculous patients was conducted by Maamari (2008) in Syria. She assessed the frequency and determinants of delay in diagnosis and treatment for new smear positive TB cases at DOTS treatment centers in a sample of 800 patients. She found that the mean delay in seeking medical help from the patient side was 52.7 days (ranging from 15 to 698 days) and the delay from the provider side was 24.8 days leading to a total mean delay of 77.6 days. Factors that were significantly associated with delay were found to be: geographical access, fear of social isolation and stigma, and seeking help from unqualified providers. Among those who initially did seek medical help, the majority (79.1%) went to a private clinic, while 17.9% resorted to public hospitals and only 1.1% initially consulted tuberculosis center.

Still on tuberculosis, Abu-Rumman *et al* (2008) studied the prevalence of tuberculosis suspects and their healthcare-seeking behavior in urban and rural Jordan in a sample of 61,730 and found 1.544 (2.5%) as suspected cases but only 2 cases were smear positive. Cough was present in all suspected cases followed by chest pain (57.7% and 59.9% for urban and rural respectively), fever (15.2% vs. 6.8%), haemoptysis (18.6% vs. 9.8%), and loss of weight (8.1% vs. 9.0%). The mean duration of cough was 6.8 and 7.4 months for urban and rural areas respectively. The patients reported a very high level of social stigma with no statistically significant different between urban (70.6%) and rural (70.9%) areas. The majority of cases (68.7% vs. 70.9%) sought help at a public health center when the symptom first started followed by self-treatment (25.8% vs. 35.8%), private clinic (19.7% vs. 6.8%), traditional healers (15.5% vs. 41.0%), TB center (11.6% and 6.5%), and general hospital (9.0% vs. 12.8%). The authors draw particular attention to the fact that a relatively very high percentage of TB suspected utilize the service of traditional healers for such a serious illness even in urban areas (15.5%) with even much higher parentage in rural areas.

Delay in seeking help for a serious condition like myocardial infarction can be the difference between death and life. Khraim *et al* (2009) tried to find out about predictors of delay in decision making to seeking health care among Jordanians with acute myocardial infarction though a sample of 134 patients. They reported that decision delay was dangerously long with medina of 3.5 hours. Only 2% of patients immediately took proper action and did seek proper medical help while the vast majority resorted to other actions: rest, pretending nothing is wrong and hoping that the symptoms will go away by itself.

Among factors predicting delay in decisions making: younger age was associated with more delay, education level and marital status were not found to be associated while seriousness of the illness and thinking that the source of pain is from heart were negatively associated with delay.

Traditional healers are still common in many developing countries and resurgence in its utilization has been observed in both developing as well as developed countries. Al-Rowais *et al* (2010) tried in their study: "Traditional healers in Riyadh region: reasons and health problems for seeking their advice, a household study" to explore this phenomena in Saudi Arabia. In a sample of 1,408 individuals, about 62% of them had used the services of traditional healers at sometime in their life and 24% did so in the past 12 months. Socio-demographic characteristics favoring the use of traditional healers were found to be: older age (>60 years old), females, married, divorced, widowed and low education level. The medical conditions for which they resorted to these healers were: abdominal discomfort, flatulence, lower back pain, depression, and headache. Reasons for doing so included: their belief in effectiveness of this mode of therapy (51%), preference of natural methods (29%), and not getting benefit from conventional medical treatment (25%).

Pourreza *et al* (2011) studied the health care seeking behavior among the residents of the capital city of Iran, Tehran in a sample of 1882 individuals. Overall, 22.9% reported experiencing at least an episode of an illness in the previous month. The majority (81.0%) of those who were ill resorted to a qualified healthcare provider while 11.1% used self-medication and a further 7.9% just decided to wait and see. Among the socio-demographic characteristics influencing the health seeking behavior, gender and age found to be two major factors. Older (>60 years old) and female participants were more likely to look after their health with odd ratios of 2.49 (95% CI: 1.46-5.19) and 1.69 (95% CI: 1.29-2.38) respectively. Other favorable factors included: perceiving the illness as severe, higher education level and marital status. The researchers found no statistically significant association between health seeking behavior and these variables: ethnicity, family size, occupation, income, and methods of payments for services. About one third (31.5%) of participants' first choice of healthcare provider was visiting a general hospital and a similar proportion (31.2%) consulted a specialist and only 13.5% visited a general

practitioner (GP) followed by private hospital (10.3%) and the lowest proportion (3.4%) resorted to traditional and alternative medicine.

As part of a national survey to study health service utilization, which gathered data on about 17,000 individuals from 3,514 household, Hosseinpoor *et al* (2007), explored the determinants of health seeking behavior for needed outpatient care in Iran. Out of the whole sample, only 2,720 (16%) individuals expressed their need for healthcare in the previous two weeks, of which more than two-thirds (69.5%) did seek outpatient care. Socio-demographic variables that were statistically associated with seeking medical care included: female sex, being married, higher level of education, having low socioeconomic status, pensioners, having health insurance, and living in an urban area while age was not found to be associated.

Another illness that may be perceived as stigma and preclude proper health seeking behavior is sexual diseases. Vahdaninia *et al* (2009) tried to study this intricate subject by exploring the help seeking behaviors for female sexual dysfunction in a sample of 1,540 patients. They found that overall, 51% reported experiencing female sexual dysfunction of which more than one-third (35.8%) failed to seek professional medical care. Out of the remaining two-thirds who did seek medical care, about one-third (33.2%) consulted a gynecologist and a further 13.9% sought help from a general practitioner, 1.4 from psychiatrist while 15.7% sought help from multiple healthcare providers. Reported reasons for failing to seek proper medical care included: time constraint (39.1%), "it did not occur to me" (28.5%), feeling embarrassed (9.6%) and thinking that the doctor cannot help them (9.6%), and 11.4% reported more than one of the above reasons.

Health Seeking Behavior Studies in Iraq and Kurdistan Region

As has been emphasized earlier, our country is lagging behind when comes to the field of health service research in general and more specifically health seeking behavior studies when compared to the developed countries or even developing and neighboring countries. A search in PubMed for the keywords "health", "seeking", and "Iraq" retuned only 7 studies but none are about Iraq. They were all related to health seeking behavior among USA military personnel 'returning' from Iraq. A similar search in Google Scholar retuned 10 studies with the same content.

Up to now, an academic journal does not exist that is dedicated to health service research in Iraq and almost all the researches published in the national academic journals up to a recent time were related to clinical conditions. The reason for lack of scholarly articles about HSB may be partially explained by the fact that these studies have to be population-based which needs more time and resources and it is very difficult to be done by our health researchers without funding and as we know, still sources of funding deos not exist in Iraq to apply for when conducting research.

Fortunately the situation on health service research is slightly better. Recently, there has been a surge in interest for such topics. Almost all the literature about health services in Iraq are dated to 2003 and onward because previous research about health system in Iraq were perceived as criticizing the government and was not welcomed except in a very narrow context. This trend started with several reports highlighting the importance of health systems in the quality of delivering health service but they depend mainly on anecdotal evidence. The first report is: "Health in Iraq: The current situation, our vision for the future and areas of work" in 2003 by Dr. Aladin Alwan, who prepared this report when he was the Minister of Health in Iraq in the post-conflict of 2003. It summarizes his vision and immediate steps to be undertaken. Additionally, it provides some background information on the health system in Iraq in general and it is heavily based on unpublished internal reports (Alwan 2004). Another report was prepared by WHO regional office: "Health Systems Profile: Iraq" in 2006 which describes health system in Iraq, its organization, governance, finance and expenditure, human resources, heath service delivery and health system reform (WHO 2006c). In addition to these main reports, there are several others that heavily depend on them like: Country Cooperation Strategy for WHO and Iraq 2005-2010 (WHO 2006a), several surveys done by UN agencies and some companies in the context of health system strengthening projects (Liu *et al.* 2003; Telyukov 2003; WHO *et al.* 2003; Evans 2004; Liu *et al.* 2004; WHO *et al.* 2007a; Birch *et al.* 2008; USAID *et al.* 2009; WHO *et al.* 2009; WHO *et al.* 2011). Another momentum to such an interest was the multiple conferences especially in Kurdistan region with the aim of reforming the health system in the region (MOH-Kurdistan Region 2004; MOH-Kurdistan Region 2006; MOH-Iraq 2008; MOH-Kurdistan Region 2010).

This recent surge in health system research was heralded by some theses and dissertations. Below is a list of some of these:

1. Bilbas OA (2004). Distribution of health manpower in Erbil governorate. MSc thesis. Erbil, Salahadin University.

2. Khudairi J (2005). Evaluation of PHC system in Iraq. PhD dissertation. Baghdad, Mustansariya University.

3. Aziz SR (2008). Performance appraisal system for physicians in Iraqi Kurdistan. MSc Thesis. Leeds, University of Leeds.

4. Star SA (2008). Recommended health system reforms in Iraq. MSc Thesis. Berlin, Berlin School of Public Health.

5. Wahab MA (2010). Distribution of doctors workforce in Erbil governorate. MSc thesis. Erbil, Hawler Medical University.

6. Raoof AM (2011). Safe motherhood needs assessment in Erbil city. PhD dissertation. Erbil, Hawler Medical University.

7. Shabila NP (2012). Assessment of the primary health care system in Erbil governorate using a multimodal method. PhD dissertation. Erbil, Hawler Medical University.

From the above mentioned list, only the last one is partly about health seeking behavior in the context of primary health care. In his study Shabila (2012) used a purposive non-random sample of 40 subjects to assess their health seeking behavior and perception toward primary health care services in Erbil. He found that the majority used home treatment, sought advice from family members and friends or used self-medication as an initial step and only a minority consulted a physician as a first step. Generally people preferred to be seen by a specialist rather than a general practitioner although some resorted to traditional spiritual healer especially for orthopedic conditions like fractures. Some high socio-economic people bypassed the whole system and sought healthcare abroad mainly in the neighboring countries of Iran, Jordan and Turkey. Shabila's study is the first academic research in the region about health seeking behavior but he used a qualitative method with a small sample. Although using qualitative method for such studies is important and can yield valuable information but still each service a different purpose and the need for regularly updated quantitative information about who uses what services and related questions still exist.

In addition to this, the only literature about health seeking behavior comes from the national surveys conducted by various UN agencies in collaboration with the Ministry of

Health or other relevant ministries and the statistical institutions in Iraq. The first of such a survey was the "Iraq Living Condition Survey" conducted by United Nations Development Program (UNDP) and Central Organization for Statistics and Information Technology (COSIT) which is under the Ministry of Planning and Development Cooperation in 2004. The national survey was conducted in all Iraqi governorates including Kurdistan region with a sample size of 21,668 households aiming at establishing a baseline for measuring development. The survey included many section in addition to health: demographic, housing and infrastructure, education, labor force, and household income and wealth. The survey reports that overall, 4.4% of the general population suffered at least an episode of an acute illness in the past two weeks. The highest rate was reported in Sulaimaniya (9.5%) while the lowest was in Salahaddin governorate (2.4%) and the rate for Erbil was (3.4%). Overall, females reported slightly more (5.0%) than males (3.8%). With regard to age, older people (above 65 years old) reported the highest rate of acute illness in the past two weeks (10.1%) and the lowest rate (3.4%) was for the 15-24 years age groups. About the socioeconomic status, the low quintile reported the lowest rate (3.9%) while the highest quintile reported the highest (4.9%).

With regard of seeking external help, only 17% did so and the cost of healthcare was a major concern for some population groups, almost a third (30%) were not able to seek professional healthcare due to inability to pay. The highest rate of seeking external help was reported in Kirkuk (25%) and the lowest in Thiqar (5%) while the rate for Erbil was 14%. There was no significant difference between the genders (17% and 18% for male and female respectively) or between different socioeconomic groups (18% for the lowest and 20% for the highest quintile socioeconomic status) while the age groups reported more difference with the lowest rate (13%) in the old age groups of 65 years and more and the highest (21) among the 25-34 years old group. More than half of those who reported being in the past two weeks were mild while about 42% were not able to continue with routine life due to severity of the condition with higher incidence of such severe condition in extremes of age and in females. Among those who did seek external professional help, overall, about 50% consulted a specialist, 43% consulted a general practitioner, 5% resorted to a pharmacist while only 1% consulted a nurse and a minority resorted to traditional healers. The highest rate for consulting a specialist was in Al-Anbar

(69%) while the lowest was in Kirkuk (38%). The highest rate for consulting a general practitioner was in Wasit (57%) while the lowest was in Erbil (29%). The highest rate for consulting a pharmacist was in Sulaimaniya (15%) and the lowest in Nineveh (less than 1%). The highest rate of consulting a nurse was in Erbil (8%) and the lowest rates were in several governorates with less than 1% like: Duhok, Kirkuk, Diala, Wasit, Salahaddin and Najaf. The highest rate reported of resorting to traditional and spiritual healers was in Basra (3%) and the lowest was in several governorate with a rate of less than 1% including: Duhok, Baghdad, Muthanna and Thiqar. The rates for Erbil were 56%, 29%, 5%, 8% and 2% for consulting specialists, GPs, pharmacists, nurses and traditional healers respectively.

The main reasons for not seeking help were given as follows: mild condition (32%), not affording to pay (18%), no available health services within reach (4%), self-treatment with traditional herbs (8%), and self-treatment with drugs (34%). The figures for Erbil were not reported but for Kurdistan region were 50%, 15%, 11%, 3%, 9% respectively. The highest rate of those who did not seek health due to inability to pay was in the lowest (28%) and the lowest (7%) was in the highest socioeconomic quintile.

With regard to health institutions consulted during illness, overall, around half (50.2%) consulted a private clinic doctors, 24.5% a public health center, 16% a public hospital, 1.4% a private hospital, 1.9% an NGO clinic or hospital, and 4.2% a pharmacy. The figures for Erbil governorate were 61.3%, 13.5%, 17.2%, 0%, 4.8%, and 2.1% respectively. Surprisingly enough, the rate of consulting a private clinic did not differ substantially as might be expected between the lowest (45.2%) and highest (56.6%) quintile socioeconomic groups as in the case of affordability above (UNDP *et al.* 2005).

This survey has the credit to be the first quantitative survey that included data about health seeking behavior with a large representative sample for the entire country and established a baseline data for later reference. What is lacking is an in depth analysis and discussion of the resulting and comparing it with relevant and neighboring countries.

Another nation survey that included data about health seeking behavior is the "Iraq Household Socioeconomic Survey" conducted by the World Bank in collaboration with COSIT and Kurdistan Region Statistical Office (KRSO) in 2007 with the aim of providing necessary information for understanding the nature and factors associate with

poverty in Iraq in a sample of 18,144 households (World Bank *et al.* 2007). The survey collected vast information about demographic characteristics, housing, education and culture, labor force, household time use, food rations, household expenditure, income, and loans, assistance and risks. The results from this survey are somewhat comparable to the previous one. They report that overall, 9.5% of the sample had experienced an episode of an illness or sustained an injury during the past 30 days with the highest rate in Sulaimaniya (30.1%) which is almost ten time higher than lowest rate in Salahaddin (3.9%) and the rate for Erbil was 14.5%. Overall, females reported slightly higher rate (10.3%) compared to males (8.8%). Within the age groups, the highest rate was reported for both extremes of age (15.3% for less than 5 years and 13.4% for more than 65 years old) and the lowest rate (6.4%) for the 10-19 years age group.

The proportion of those who did seek some sort of medical assistance is also more or less similar to what have been reported by the previous survey. Overall, about 37.8% did seek some sort of medical help. The main reason for not seeking medical help was that the illness was not perceived as severe enough to do so. On the other hand, overall, about 14.3% did not seek professional help because they could not afford it. The highest rate was in Thiqar (32.8%) and Nineveh (32.5%) and the lowest rate was in Erbil (4.9%). Other reason for not seeking needed medical help included: no health centers within reach (3.3%), unavailability of necessary services (2.1%), unsafe security situation (1.1%). The highest rate for those who could not seek medical help due to security reasons was reported in Salahaddin (19.8%) and Al-Anbar (11.9%).

Out of those who did seek medical assistance, the highest rate (35.2%) used the services of a public hospital or a health center followed by private clinics (32.8%) of either a specialist or a general practitioner. Others consulted a nurse (11.6%), a pharmacist (9.5%), or a private hospital (8.6%) and minority (1.6%) used other services. Among the governorates, the highest rate for using public hospitals or health centers was Diala (68.9%) and lowest was in Babil (22.8%). The highest rate for consulting private doctor clinics was in Babil (58.1%) and the lowest was in Sulaimaniya (4.2%). The highest rate for using the services of a nurse was in Erbil (31.1%) and the lowest was in Salahaddin and Muthanna (less than 1%) (World Bank *et al.* 2007).

These two surveys share some similarities. They are both nationally representative survey with a large sample size but they have different approaches and focus on different issues. The "Iraq Living Conditions Survey" reported illness in the past two weeks while "Iraq Household Socio-economic Survey" report illness in the past month. The advantage of the shorter period of two week is fewer problems with recalling but at the same time, the health seeking decision making process may not be yet complete. Many people may wait for 2-3 weeks before they seek professional medical help. On the other hand, the longer period of one month has the advantage of more possibility of a complete health seeking decision making process while having the disadvantage of recall bias.

The third national survey that collected some information about the health seeking behavior is the "Iraq Family Health Survey" conducted in 2007 by WHO in collaboration with the Federal and Kurdistan Region Ministries of Health, COSIT and KRSO. This survey had a sample size of 9,345 households and 14,675 women of reproductive age from all governorates in Iraq and provides data on a wide range of indicators related to women and family health. They report that prevalence of chronic disease were as follows: hypertension (4.15%), diabetes (2.18%), musculoskeletal diseases (1.86%), heart disease (1.2%), gastro-intestinal disease (1.12%), asthma (0.83%), chronic urinary tract diseases (0.74%), chronic respiratory diseases (0.52%), chronic back pain (0.49%), anemia (0.37%), chronic headache (0.32%), and skin diseases (0.29%). As the main focus of this report is women's health, they only report about the health seeking behavior of women during childbirth. They report that 64.1% of women delivered at hospital compared to 34.3% at home. Hospital deliveries were higher in urban than in rural areas (70.0% and 55.1% respectively). They conclude that the education status of women influences the place of delivery. Home deliveries is higher among women with no education (46.8%) compared to hospital deliveries those women with secondary and higher level of education (76.6%). Hospital deliveries are much higher in the younger age group 15-19 with 79.0% and the rate decreases with higher age group (45-49) where home deliveries are more. They also show that 58.3% of women with abortion or miscarriage did seek health care at hospitals and only 35.3% received home care with only 5.3% at health centers and private clinics. Women in urban areas made use of hospital services more often during abortion or miscarriages. Higher proportions of abortion or miscarriage

received hospital care in Kurdistan region compare to the rest of Iraq (WHO *et al.* 2007b).

1.3. Consumer Satisfaction

The main focus of this study is to answer questions related to the health seeking behavior of people when they become ill and to understand this behavior in relation to different factors. These factors include personal, environmental and characteristics of health care delivery institutions. One of the most important characteristics of health care delivery is the quality of care. Quality of care is known to affect people's choice and decision to seek health care.

Quality of health care service is a very complex issue and there are many ways that try to capture this concept. Donabedian, who is regarded the father of research on the quality in health care and medical outcomes research, developed methods of quality assurance for health services by maintaining that quality of care can be measured for the purpose of evaluation at three points in the delivery of health services: structure, process, and outcome.

```
┌───────────┐      ┌───────────┐      ┌───────────┐
│ Structure │ ───> │  Process  │ ───> │  Outcome  │
└───────────┘      └───────────┘      └───────────┘
```
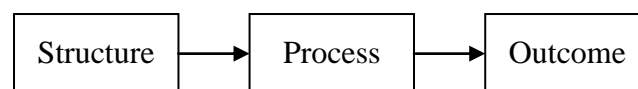
Figure 1-2. Donabedian model of health service quality

Structure means the equipment, infrastructure and resources that are available to the health care providers and the physical and organizational settings in which they work. Process is the series of activities that occur within and between providers and consumers of health care. Outcome is the change in a patient's or population's current and future health status including both morbidity and mortality that can be ascribed to the intervention provided by the health care system. "Structure" can also include qualifications of health professionals, characteristics of the hospital and health center buildings, standard operating procedures, financial situation, etc… "Process" can include the process of diagnosing the illness, procedures performed and how, the quality and

completeness of health instructions given to patients, etc… "Outcomes" can include any desired end results of health care intervention such as the lengthening of life, relieving of pain, lessening of disability, prevention of disease, satisfying of consumers, etc…

Figure 1-3 shows a modified version of the previous model. In this model, the structure element is renamed as "input" and one intermediate stage has been added to the model which is output. The reason for adding this intermediate stage is the fact that in most cases many outcomes related to the public health like life expectancy, morbidity rate and others may take a very long time to show even a small difference. That is why in many they now measure "output" of the program or the system that is much easier to capture and quantify. Examples of outputs may include: number of children vaccinated, number of operations conducted and so on.
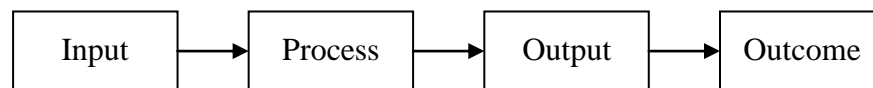
Figure 1-3. Modified Donabedian model of health care quality.

Regarding the importance of consumer satisfaction as an independent variable, Donabedian argues that satisfaction combined with health status as the outcome is the ultimate outcome in evaluating the quality of health services. In his view, he is supported by many other researchers (Warren 2010).

As we can see from the model presented by Donabedian in Figure 1-4, consumer satisfaction is one of the main outcomes of health service delivery process. Many of the factors influence consumer satisfaction either directly or indirectly. On the other hand, consumer satisfaction also affects the health seeking behavior of patients favorably (Donabedian *et al.* 2003). That is why consumer satisfaction was used as a proxy for quality of care in this study. Many researchers have used consumer satisfaction as a measure for the quality of care including the landmark WHO report: "Health systems: Improving performance" (WHO 2000).
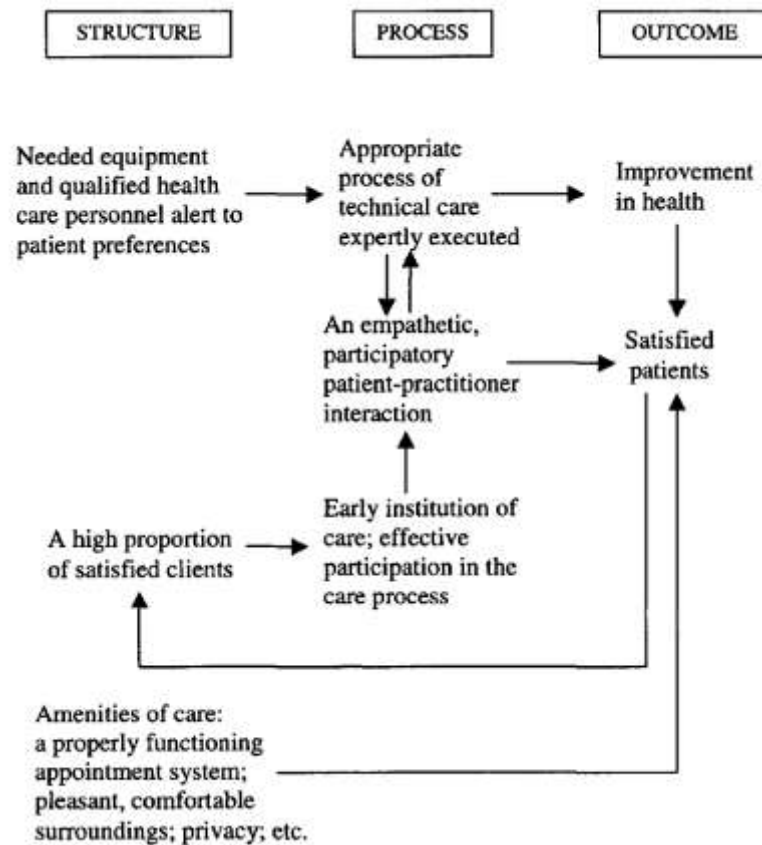
Figure 1-4: Some hypothetical relationships between characteristics of structure, process, and outcome (Donabedian *et al.* 2003)

Most surveys of consumer satisfaction are generally conducted for at least two reasons. First, the data have been used to evaluate the quality of care with the assumption that consumer satisfaction is an indicator of the structure, process and outcomes of health care. Second, satisfaction data can be used as a predicting variable to understand and anticipate the health seeking behavior of people.

Despite their importance and indispensability in the health service research, consumer satisfaction surveys are not without limitations. One of the major such limitations may be attributed to the phenomena that people of low socioeconomic status may have lower expectation of the health services especially when it is free or subsidized emphasizing the mentality of "beggars cannot be choosers" thus they may have higher satisfaction rates (WHO 2000). Another limitation of consumer satisfaction surveys is the fact that such satisfaction or lack of thereof can also be affected by factors outside the domain of the health system like: general attitude toward the government and community, role of the opposition political parties and general feeling about oneself (Warren 2010).

Donabedian (1980) stated that: "Client satisfaction is of fundamental importance as a measure of quality of care because it gives information on the provider's success at meeting those client values and expectations which are matters on which the client is the ultimate authority. The measurement of satisfaction is, therefore, an important tool for research, administration, and planning.

Satisfaction has been defined differently by different authors. Ford, et. al (1997) defined consumer satisfaction as "a judgment by the client on aspects of quality that the client is particularly capable of appreciating". Pascoe (1983), who had based his view on previous researchers, thinks of satisfaction as a comparative process between expected and perceived performances. He define it as "a health care recipient's reaction to salient aspects of the context, process, and result of their experience. This view characterizes patient satisfaction as an evaluation of directly-received service. The evaluation is seen as a comparison of salient characteristics of the individual's health care experience to a subjective standard".

1.4. Overview of Health System

Health service providers in Iraq includes: public health system, private and semi-private:

A. Public Health System:

It is funded and managed exclusively by the Ministry of Health (MOH) and all health staff are government employees. All services are free of charge except for a nominal fee but there are long waiting lists and quality problems. They run only in the morning hours except for inpatient and emergency cases in hospitals. MOH health facilities include hospitals that provide primary, secondary and tertiary care both emergency and cold cases. They are in major cities with population more than 100,000. In addition to major hospital, most districts have their own districts hospitals that provides primary and secondary care. They are usually in districts and sub-districts with towns of 20,000 to 100,000 population.

In addition to hospitals, there is an extensive network of health centers in Iraq and there several types of them. They fall into two major categories: general health center and specialized health centers. The working hours for health center is officially from 8:00 am to 2:00 pm but the bulk of patients are seen within an hour or two and after 11:00 am most health centers are usually empty.

General health centers (referred to PHCCs through the text of this dissertation) include both type A which provides all primary care services including immunization, family planning and maternal and child care. They are run by medical doctors and exist mainly in the major cities. Type B is the same with limited primary care services. There are about 1,800 primary health care centers (PHCCs) in Iraq each providing service to an average of 20,000 to 35,000 population (WHO 2003). There are 14 of such PHCCs inside Erbil city. On the other hand, type C has only limited resource and typically run by medical assistants. Usually they are in rural areas.

Specialized health centers provide specialized care to specific diseases or sub-populations and are located in major cities and include: tuberculosis health centers, center for rehabilitation of disabled children, sport medicine health center, thalassemia health center, diabetes health center and marriage health center.

B. Private Sector:

They are usually owned and run by a group of medical doctors and all services are paid for out of pocket and there is no insurance system. Private facilities include hospitals that provide mainly secondary and tertiary care. They are located in major cities with population more than 100,000. There was only one private hospital in Erbil a decade ago and currently there is explosion in the number of newly built hospitals. They provide mainly surgical and/or obstetrics and gynecological services.

Private doctor clinics are solo clinics by medical doctors. They usually start in the early afternoon (2-4 pm) until sunset or later if they still have patients. They charge 10-25 US$ per consultations which is usually 5-15 min.

Nurse clinics are shops in which nurses and medical assistants provide curative services in the immediate neighborhood. There are several in each neighborhood and are open from immediate afternoon until mid-night. Even after midnight they are happy to provide services if you knock at their door. They also sell drugs and do minor procedures.

"Charity" health centers provide limited curative primary care and are run by doctors with lower than private doctor clinics for consultation (about 4 USD) and investigations.

Traditional healers, still many people resort to them for psychiatric and orthopedic health services. Other forms of alternative medicine also exist like herb and blood-letting.

C. Semi-Public:

In the afternoon hours, some health centers operate in a public-private mode and are called "Public Clinics" or public HCs. Patients pay a lower than private for consultation about 2 USD), investigations and pharmaceuticals. A portion of the revenue is used as incentive for staff.

1.5. Health Care Options in Erbil

Similar to most of the developing countries, multiple and diverse therapeutic options coexist together in Erbil city, also known as medical pluralism, mostly in a competitive and not complementary manner. Despite the large number of health service providers in Erbil city, still the options are very limited. If somebody falls ill, their choice depends on time and urgency of the condition.

With regard to time, only the PHCCs were available in the morning hours that starts from 8:00 am. People are not supposed to directly go to hospitals because PHCCs are supposed to play the role of gate keeper and if necessary they can refer the patient into the outpatient department in major hospital. Although PHCCs are suppose to have a working hour until 2:00 pm but in reality life stops are almost all PHCCs after 12:00 pm. Between 12:00 pm and around 4:00 pm, the option are even much more limited. In these hours, only the emergency department is active.

After 4:00 pm, most of the medical doctors go to their private clinics and received patient for the next few hours. The same is true for public HCs. Parallel to doctors, nurses also do the same but they usually open their "shop" earlier and received patients until late hours. So from around 4:00 pm to around 7:00 pm, most of the health care seeking occurs. After 7:00 pm, only two options remain: emergency department and nurse clinics. Nurse clinics also close their door and after midnight to 8:00 am, emergency department remains the only available choice.

Another option that is available in the morning hours is the private clinics of retired doctors which growing nowadays.

That was about time. With regard to severe case, almost always they head to emergency department for immediate care.

CHAPTER 2
SUBJECTS AND METHODS

2.1. Study design

This study is a quantitative descriptive analytical cross-sectional community-based household survey.

2.2. Study timeline

This study was carried out in Erbil city, Kurdistan region of Iraq between November 2010 and May 2012. In the first month, the questionnaire (Appendix II and III) was developed followed by getting the necessary paperwork approvals from Governor's office to permit for performing a household survey. In the second month, a pilot study was conducted by the researcher to test the questionnaire followed by making some amendments based on the results of the pilot study.

To prepare for community-based data collection, sampling framework was selected using Geographical Information System (GIS) based on a residential pattern sampling map (details in the sampling section below). Data collection started by the researcher in January 2011 through a door-to-door household survey and continued for the next six months. In the meantime, writing the dissertation has also started. Upon completion of the data collection, data entry was done by the researcher in July and August 2011 followed by data error checking and data validation which took another two weeks. This was followed by data analysis which was done in the next two months. Dissertation writing has already started during data collection period and continued till the end of the research period in April 2012.

2.3. Study setting

The setting for this study was Erbil which is the capital city of Kurdistan regional government in Iraq and the fourth largest city in Iraq. Erbil is also known as Arbil, Irbil, Hawler and historically as Irbl, Arbela, Aba-ilo, Urbilum and Arbera. It is an ancient city in northern Iraq located about 350 km north of Baghdad and 80 km east of Mosul in the

foothills of the mountains that rise to the northeast of the country. It is about 400-440 meters higher than the sea level and located on latitude 36.11 and longitude 42.2. The city is an administrative, commercial, agricultural hub. Erbil is one of the oldest continuously inhabited cities in the world. The population is estimated to be around 1.2 million and is a mixture of a majority of Kurds and a minority of Torkomans and Christians. The city is the center of Erbil Governorate with a population of about 2 millions. It has become the capital of the Kurdistan Regional Government since 1992. The weather in the city is hot and dry in summer with temperature rising above 45° C in July and August while in winter; it is cold and rainy with temperature decreasing to below freezing levels in December and January (Al-Haydary 1985; Ismail 1986; Ismail *et al.* 1986; Aziz 1990; Al-Haydary 2002; Muhammad 2003; KRSO 2010; UNESCO 2010; Arbil 2012).

Erbil is mentioned in the late 3rd millennium BC correspondences of Shulgi, king of Ur, as Urbillum, and later it was known as Arba-ilu by the Assyrians. It was a center of communication during the Assyrian Empire (2300 BC - 612 BC) and long remained a crossroads of caravan routes. In the Battle of Gaugamela, also known as the Battle of Arbela, fought near the city in 331 BC, Alexander the Great defeated Darius III, opening the way for his conquest of Persia. The town became Christian at an early time. The Muslims conquered the city around 638. Muzaffar-Addin, brother-in-law of Saladin, made Erbil his capital from 1190 until 1232 and constructed several buildings including hospitals and schools that can still be seen at the foot of the upper town (Ismail 1986; Ismail *et al.* 1986; Dargalayi 2002).

The city was part of the political instabilities that existed in Iraqi Kurdistan during most of the second half of twentieth century. The Kurdish revolution started in 1961 and continued on and off until 1970. After 4 years of relative peace, war restarted in 1974 until the collapse of the revolution in 1975. The 8 years of the Iraq-Iran War, followed by the aggressive attack on the area by the Iraqi central government has demolished almost all the villages (about 4,000) of Kirkuk, Suleymaniyya, Erbil and Duhok governorates. Hundreds of thousands of Kurds from the demolished villages of these governorates moved toward the main Cities. Erbil received the greatest portion of these people. Then Gulf War in 1990 and the ensuing sanctions choked off investment in essential social services. The inter-party armed conflict between the two leading political factions led to further disruption during 1994-1996. Not only the civilians were drawn into these

conflicts but it lead to widespread destruction of basic infrastructure like hospitals, health centers, schools, power supplies or drinking water system (UNICEF 2000).

Erbil city suffered most of the consequences, as it was the main battlefield during the internal conflict. In addition to the direct effects of internal war like refugees, there were more important indirect consequences: increasing unemployment rate with resulting low income, malnutrition and illiteracy.

An example of the indirect effects: from the early 1990s up to 1998, there was only very few new houses constructed in Erbil. This means more people (natural increase in population as well as refugees) in the same number of houses. The UN Security Council's oil-for-food resolution (SCR) 986 was an attempt to provide humanitarian exceptions to its sanctions, approved in May 1996 and began to provide humanitarian relief starting from April 1997. Since the beginning of the SCR 986 program in 1997, followed by the peace agreement between the two fighting factions in 1998, the situation has gradually improved. Free food rations have ensured that basic food needs are met for all the population. Reconstruction of schools, hospitals and primary health centers, drinking water supplies have allowed the public social services to start functioning again. And above all, peace has allowed the local people to begin rebuilding their lives again. An example of such improvement is hat malnutrition rate among children under-five in the three northern governorates had dropped from 25.8% in December 1994 to 14.7% percent in June 1999 (UNICEF 2000).

For a longtime in its history, Erbil was made of the Citadel only, the Bazaar and some dispersed houses were situated outside it mainly to the south. The now called Arabi Kon quarter seems to be the earliest expansion of Erbil city to out of the citadel (Al-Haydary 1985; Aziz 1990; Ibrahim 1994; Chakmakchi 1996; Al-Haydary 2002; Al-Mudaris 2003). Below is a list of the city quarters with their time of establishment:

1920s Khanaqa, Tajil and Arabi Nwe.
1950s Tairawa, Saidawa and Sadoonawa.
1960s Azadi, Shorish and Iskan
1970s Basta Piaza, Setaqan, Kuran, Alban, Badawa, Balashawa and Zaniari.
1980s Shurtawa, Raparin, Safin, Pakat, Malayan, Brayati, Rangin, Zubat and Andaziaran.

1990s Quarter 92 and Quarter 94.

2000s Ari and Dolarawa, Bakhtiary and Waziran.

2.4. Study population

The population for this study is a representative cluster sample of general Erbil city population who are using different health services: both genders and all age groups. As the main aim of the study was to answer the questions: who is using what services, when and why in addition to their satisfaction, therefore; everybody needs to be included in the sample. When the researcher visits the households, after introduction and obtaining necessary consent, the aim of the study will be explained to enroll them in the study.

Inclusion criteria: everybody who is a resident of Erbil city.

Exclusion criteria: health personnel were excluded from this study. The main reason for this exclusion is the fact that health staff has a very different health seeking behavior in comparison to the rest of population. The rate of self-treatment is much higher among them. Additionally they usually bypass the hierarchy of the system and may go directly to colleague. Even for doctors working in hospitals, it is very common to get a "corridor consultation" where a medical doctor asks his fellow doctor about his illness while walking down the corridor. Others may feel embarrassed to consult someone whom they know and may lead to delay in seeking needed help. For these reason, this group was excluded from this study as they need a study in their own (Davidson *et al.* 2003).

2.5. Sampling

Due to unavailability of a sampling frame in Erbil city, the researcher used an alternative strategy to do the sampling using GIS based on a recent satellite image of Erbil city (Figure 2-1).

Figure 2-1. Recent satellite image of the metropolitan areas of Erbil city (Erbil Governorate GIS Center 2010).

When a reliable sampling frame is not available, researchers usually use one of the variations of cluster survey which is based on the named neighborhoods in the region. This method, which was pioneered by UNICEF and WHO to evaluate the coverage vaccination programs, is the best available method in such cases but it has at least apparent shortcoming (WHO 1991). This method assumes that the named neighborhoods are more or less homogenous but this may not be the case in many situations.

For example, Figure 2-2 shows Khanzad neighborhood in Erbil city. This non-homogenous neighborhood is collectively labeled as Khanzad by the municipality but

with a closer look, one can recognize at least three distinctly different residential patterns. In the highlighted lower part of the neighborhood, one can see small residential blocks with irregular outlines, narrow streets, no available public spaces and tightly compacted small houses indicating densely population area. In contrast, the upper part shows larger blocks with regular outlines, larger houses, wider streets and more available public space and green areas. On the other hand, the highlighted area to the left of the neighborhood shows features that are more or less intermediate between the two other extremes.

Although these three non-homogenous distinctly different residential patterns are collectively labeled as Khanzad Quarter by the municipality due to proximity to each other, but they have different socioeconomic, cultural and historic roots. Historically, the lower part of the neighborhood was the first to be built in the 1960s and still it is known informally by the old name "Basta Piaza" which means "onion valley" in Kurdish. There was a commonly observed phenomenon when a new neighborhood was build: people from the same or nearby villages, related tribes tended to reside in a neighborhood that is closest to their original villages and we have many such examples in Erbil city. People from this part of the neighborhood mostly have low socioeconomic level. In comparison, the upper part of the neighborhood was built in the early 2000s and is known locally as "Dollarawa" which means "Dollar Neighborhood" in Kurdish because it was the first post-conflict neighborhood to be established by wealthy people. The residents are of this neighborhood are of high to very high socioeconomic status but of different cultural backgrounds.

Figure 2-2. Satellite image of a neighborhood with different residential patterns.

Thus traditionally grouping these non-homogenous areas as one sampling cluster will lead to less representative samples. This main reason cluster surveys are given a very high design effect of 2, which is a measure of the variability between clusters, is due to this fact.
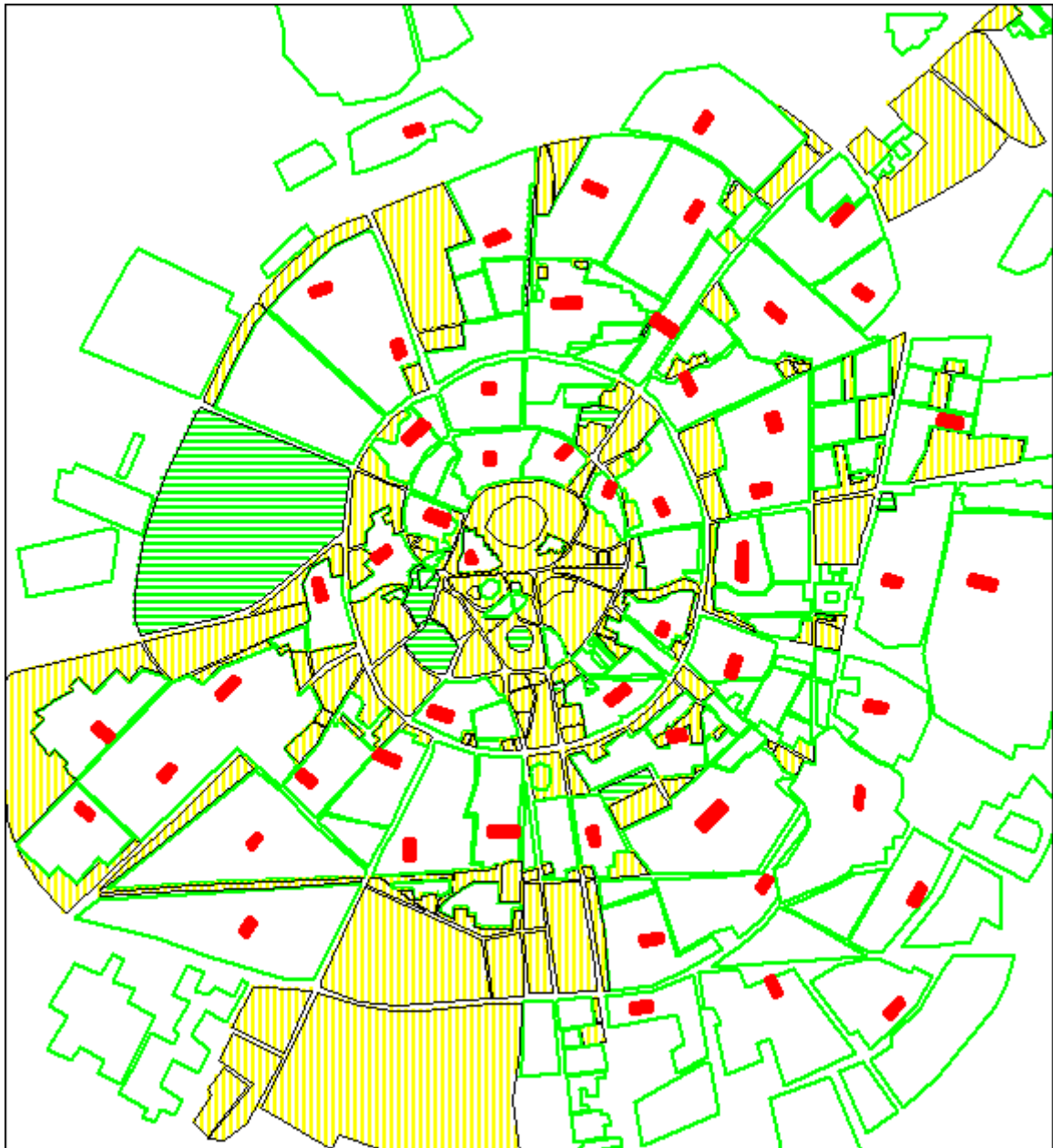
Figure 2-3. Sampling frame map

The procedure for performing spatial GIS sampling were as follows. First on a recent satellite map of metropolitan areas of Erbil city (Figure 2-1), all the distinct patterns were identified regards to its belonging to a particular neighborhood. Then blocks from almost all these distinct residential patterns were selected taking into consideration their physical proximity to each other and their distances from the main streets. Blocks having one side located on a main street were avoided because they do not represent an average block (business blocks). The result of this sampling procedure is show in Figure 2-3. The

sample blocks were numbered for easy tracking of progress and coding purposes. The GIS software, Mapinfo Version 8.0 was used to perform the above mentioned procedure (MapInfo Corporation 2008).

2.6. Sample size

To select a sample size that will be representative of the source population, the following formula was used to calculate the necessary sample size (Motulsky 1995; Jekel *et al.* 2007):

$$n = \frac{(Z_\alpha + Z_\beta)^2 \, pq}{d^2}$$

n = required sample size

Z_α = 1.96 (5% alpha error)

Z_β = 0.84 (80% power)

p = 0.5, estimated prevalence = 50% which will yield the maximum sample size when the prevalence in not known.

q = 1-p = 1-0.5

d = 0.05, difference to be detected

So to calculate the sample size according to the above formula:

$n = (1.96+0.84)^2 \, (0.5) \, (1-0.5) / (0.05)^2$

$n = 784$

The design effect is a measure of the variability between clusters and is calculated as the ratio of the variance calculated assuming Proportionate to Population Sampling (PPS) divided by the variance calculated assuming Simple Random Sampling. To account for cluster sample we have multiply by design effect which is usually between 1-2.

So with a design effect of 1.5, the total sample size becomes:

n = calculated sample size x design effect

n = 784 x 1.5

n = 1,176

To account for non-response rate of about 10%:

$n = 1,176 \times 1.1$

$n = 1,293$

However a sample of 1,500 individuals was chosen for final sample size.

2.7. Data collection tools

The following tools were used for the process of data collection. The first tool was an overview numbered sample frame of residential block (Figure 2-3). This map was used to track the progress of data collection. This was use in conjunction with a schematic of each block to record necessary information (Appendix). The second and the main tool was the questionnaire used in this study. In order to design a tool that will correctly capture the necessary variable, questionnaire from previous relevant literature and similar PhD dissertations were used to develop a new one that is scientifically based and cultural relevant (Kinnersley *et al.* 1996; Dorian 2002; Margolis *et al.* 2003; Khoury *et al.* 2004; Mahfouz *et al.* 2004; Aday *et al.* 2006; Aletras *et al.* 2006; MacNaughton 2006; Moran 2006).

The questionnaire is composed of two parts: the first part contains 15 variables related to the household and their socioeconomic and demographic information while the second part is contains variables about the health seeking behavior of individual household members. The main outcome (dependent) variables related to the research questions include: percentage of people using different services, average consultation time and the degree of their satisfaction. Other outcome variables include: time of the visit, waiting time and other related details in about 41 items related the last episode of illness and what did they do to seek help, what time, degree of improvement, second attempt if did get improved and their stratification with the services received. The questionnaire were first designed in English language then translated by the researcher into Kurdish language and was reviewed by the supervisors and colleagues in the department of community medicine at the college (Appendix II).

2.8. Pilot Study

A pilot study was conducted in two regions in Erbil that included 20 individuals in 6 households to test the initial version of the questionnaire for appropriateness of the questions in addition to flow and logic. The pilot cases were not included in the final sample due difference in the questionnaire.

2.9. Data Collection

Data was collected through the use of the above mentioned tools. The researcher conducted a door-to-door household survey in the selected city blocks. Time of visit was taken into consideration. To ensure maximum convenience for the study population, only immediately before and afternoon as well as about an hour after the sunset were chosen for household visits. In these times people are expected to be awake and at their full capacity to cooperate.

To ensure finding the selected residential block, Google Earth on iPhone was used. The sampled residential blocks were exported into a format that can used by Google Earth.

Figure 2-4. Screen capture of Google Earth on iPhone.

In the initial visit, after knocking at the doors and waiting until they respond, they were given copies of the individual questionnaire in addition to the consent form. After explaining the purpose and idea behind the study, the copies of the questionnaire were left for the family and were told that the researcher will be back after the sunset in two days. In case of no response to knocking at the doors, enquiring was made from their neighbors and the situation dealt with accordingly. Many households were not completing their questionnaire in time and the researcher was visiting them for the second and third times. After completing the questionnaire, the researcher was reviewing them with the household members for completeness and any item that was not clear.

Another source of data were the local real estate dealers whose help were sought to provide the price of land in the selected residential blocks which was used as part of calculating the socioeconomic score for the households.

2.10. Data analysis

Data from the filled questionnaires were entered into different worksheets in Microsoft Excel 2010 for each part of the questionnaire. Then information from the residential blocks was added and the sheets were combined followed by data entry checking and validation. Then the cleaned data was imported into the Statistical Package for Social Sciences software for further data management and analysis (SPSS Inc 2010). The variables were coded appropriate according to the variable type. Different statistical test were used accordingly like Chi-square, correlation, principal component analysis and logistic regression. The customary p-value of ≤ 0.05 was used as statistically significant (Motulsky 1995; Jekel *et al.* 2007; Rosner 2010).

2.11. Socioeconomic status and scoring

In this dissertation, PCA was used to calculate relative weight to the socioeconomic variables that are commonly used and included: house area, number of living rooms, number of floors, cooling system used, house ownership, house exterior materials, house

age, number and type of cars, computers, washing machine, dishwashing machine, and schooling of children. Figure 2-5 shows the result of PCA analysis in graphical format and Table 2-1 shows the relative weights given for each variable. The table shows that highest weight is given to the number of cars owned by household followed by having a computer, house area, ownership of a washing machine, number of living rooms, and type of cooling appliance in descending order while less weight is assigned to number of floors, ownership of a dishwashing machine and the type of house exterior materials. On the other hand, the following variables have been assigned a negative weight: car type, whether private or not and house ownership when the tenants do not own the house and lastly schooling of the children whether in public or private schools.
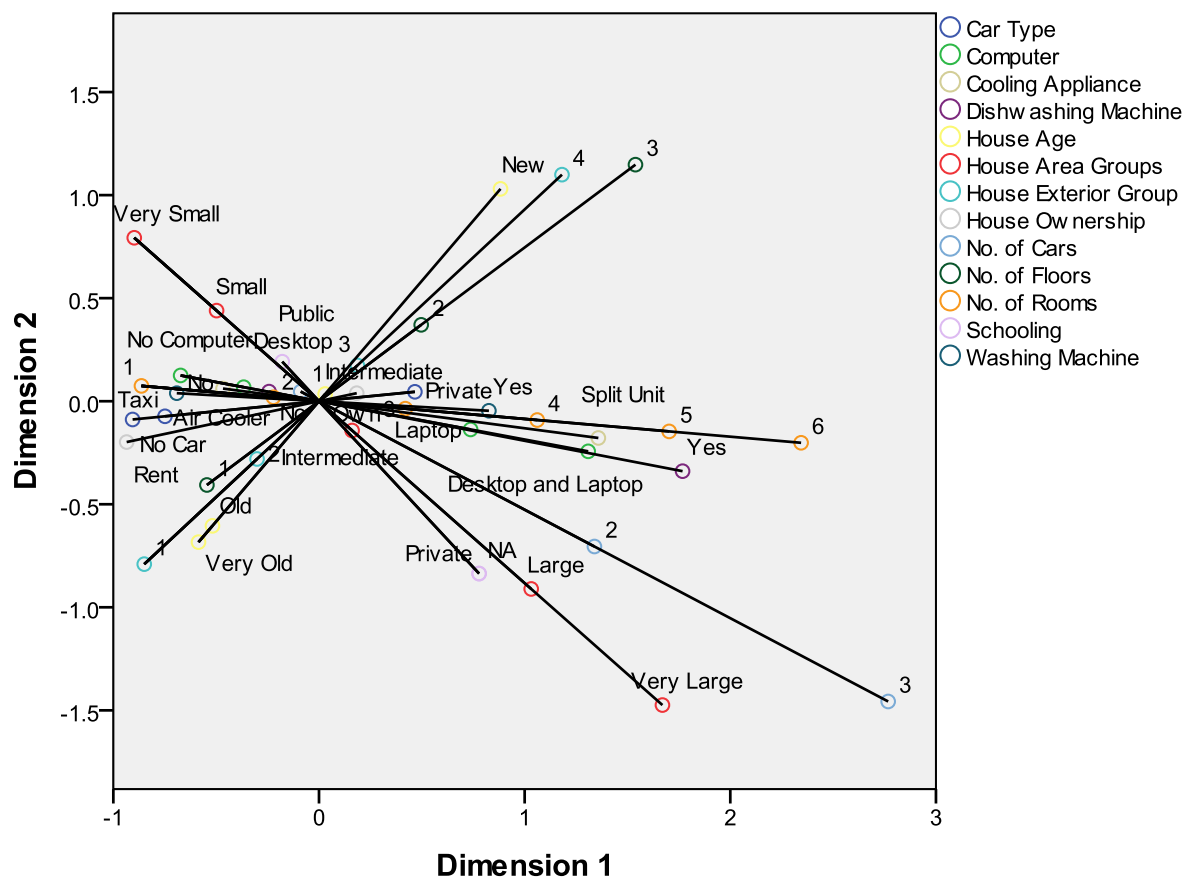
Figure 2-5. Joint plot of category points of PCA

This PCA plot show the underlying patterns in the variable associated with socioeconomic status. In the upper part of the graph, one can see clustering of several

variables together. These include: house age, number of floors and type of house exterior material. This phenomenon is quite clear that most of the newly built houses in Erbil city are built on a relatively small piece of land with multiple floors and often relatively expensive exterior materials. While in the lower part of the graph, we can see clustering of large area houses with ownership of several cars and private schooling of children.

The socioeconomic index was calculated by multiplying each variable with its PCA calculated weight then summing them together. This created a scale variable that can be used directly in regression analysis and further divided into five groups corresponding to quintile of socioeconomic groups of very low, low, intermediate, high and very high.

Table 2-1. Relative weights assigned to socioeconomic variables by PCA

Variable	Weight
Cooling appliance	0.447
No. of rooms	0.559
House area	0.661
No. of floors	0.181
House ownership	- 0.434
House Exterior	0.186
House Age	0.188
No. of Cars	0.850
Car Type (Private or not)	- 0.853
Computer	0.757
Washing Machine	0.647
Dishwashing Machine	0.285
Private Schooling	- 0.142

2.12. Ethical considerations:

People may be concerned when asked about their satisfaction and the quality of health services provided by government health institutions because it might be interpreted a criticizing the performance of the government and thereby political parties they belong to. The households were told that the researcher is not directly related to the Ministry of Health or the health centers and that the purpose of this study is to know the quality of

their services so that they can be improved. After stating the goal of the survey, they were told that their participation is completely voluntary and will not entail any personal gain or loss but they were reminded that their participation and expressing their frank opinion will help policy-makers to improve the quality of health services. They were told that no name or personal identifications will be recorded and that only aggregate results will be published and shown to policy-makers, media and the public. Additionally, this study was reviewed and approved by College of Medicine committee for graduate studies and scientific committees at Hawler Medical University for its compliance with standards with regard to ethical considerations.

CHAPTER 3
RESULTS

3.1. Sample description

Out of the 1,500 individuals who were interviewed, only 1,328 completed the questionnaire successfully with a response rate 88.5%. The reasons for non-response were different, some apologized politely that they don't have time; others claimed that they have lost the questionnaires and a minority were arguing that they do not believe research will be able to make any change in our health system. The response rate was slightly lower than the expected rate as perceived by the researcher.

Table 3-1 shows the basic demographic characteristics of the sample population. The gender distribution seems representative of the general population with slight non-statistically significant overrepresentation of females. For most analysis in this study, the age is grouped into the logical age groups of below 15, 15-44, 45-64 and more than 65 years. The percentage of population in each age group is more or less similar to the general population (KRSO 2010). To see the frequency distribution of the sample population, a ten year group serves a better purpose which is shown in Figure 3-1. With regard to education level, about a fifth of the sample are not able read and write, with the highest percentage (27.3%, almost a third) having only primary education. The percentage dwindles with more years of education. With regard to occupation, the highest proportion were housewives followed by students in various levels of studying from primary education to college undergraduates followed by skilled professional occupations then non-skilled occupations and lastly the lowest group was the highly skilled professionals (4.7%).

Table 3-1. Basic demographics characteristics of the sample population.

Variables*	No.	(%)
Gender		
Male	655	(49.3)
Female	673	(50.7)

Variables*	No.	(%)
Age		
<15	185	(13.9)
15-44	735	(55.3)
45-64	309	(23.3)
≥65	99	(7.5)
Education		
Illiterate	249	(19.4)
Primary	350	(27.3)
Intermediate	193	(15.0)
Secondary	187	(14.6)
Institute**	125	(9.7)
College**	164	(12.8)
Post-graduate	15	(1.2)
Occupation		
Highly skilled professionals	58	(4.7)
Skilled professionals	290	(23.5)
Non-skilled occupations	201	(16.3)
Housewives	327	(26.5)
Students	314	(25.4)
Preschool children	45	(3.6)

* The subtotals may be different due to nature of relevant data, for example, the subtotal for education is less than total for the whole sample because preschool children were not included. This applies to all tables.

** Institute 2 years (similar to community college) and college 4 years of study.

As mentioned above, the logical age grouping that is use throughout this study does not show the overall distribution pattern, Figure 3-1 shows a ten-year age grouping that shows the frequency distribution of each age decade of life. The distribution also shows a fairly distributed sample population across the age variable.
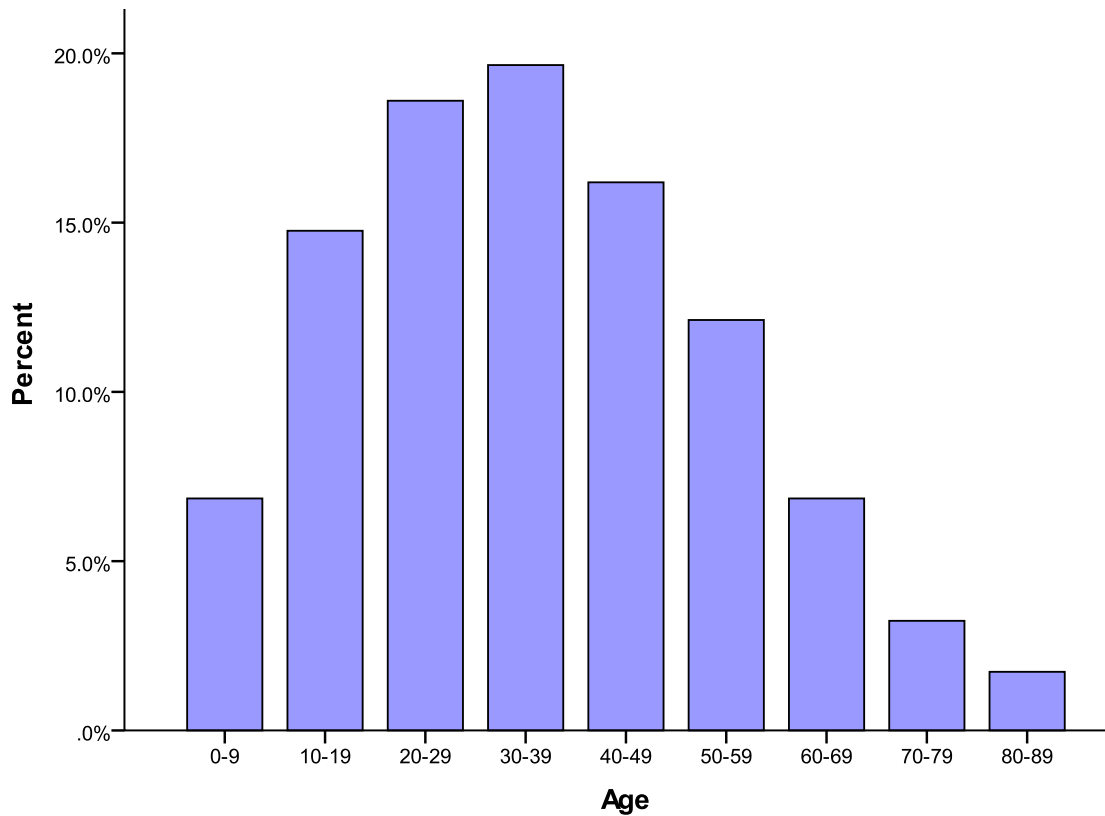
Figure 3-1. Frequency distibutions of age of the sample by decade.

The 1,328 individuals sample population was from 442 households. The mean ± SD of household size was 5.8 ± 2.5 with a median of 6 ranging from 1-14. On average, only 3 individuals were selected per household for interview. Figure 3-2 shows frequency distribution of the sample household size which resembles data for Erbil population (KRSO 2010).
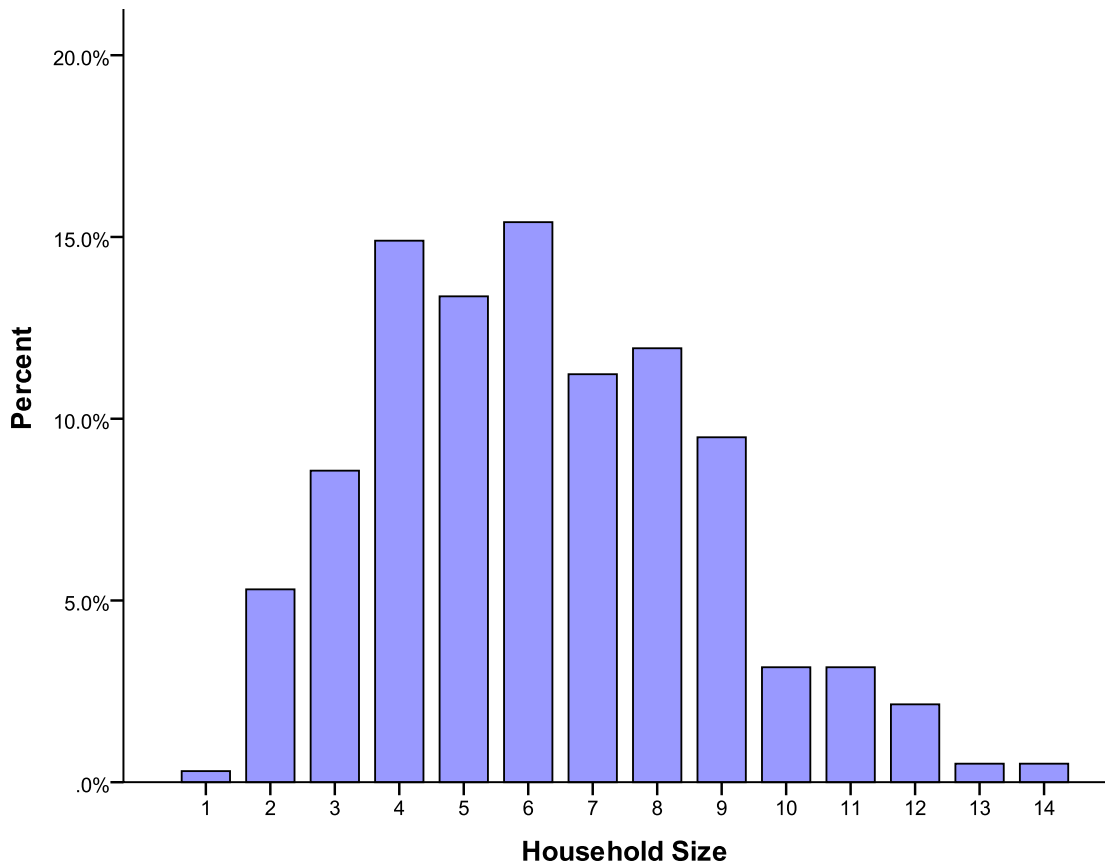
Figure 3-2. Frequency distribution of household size.

Figure 3-3 shows PCA based histogram of the socioeconomic scale of the population sample which shows the typical right skewness. Although the bulk of the population is below the lower third, still a fairly large group of middle-to high socioeconomic level households can be seen with scales more than 10. This reflects the fact that despite an overall general improvement in the socioeconomic level of many households, yet a significant proportion is well below the average. On the other hand, a distinct cluster can be seen in the upper quintile.
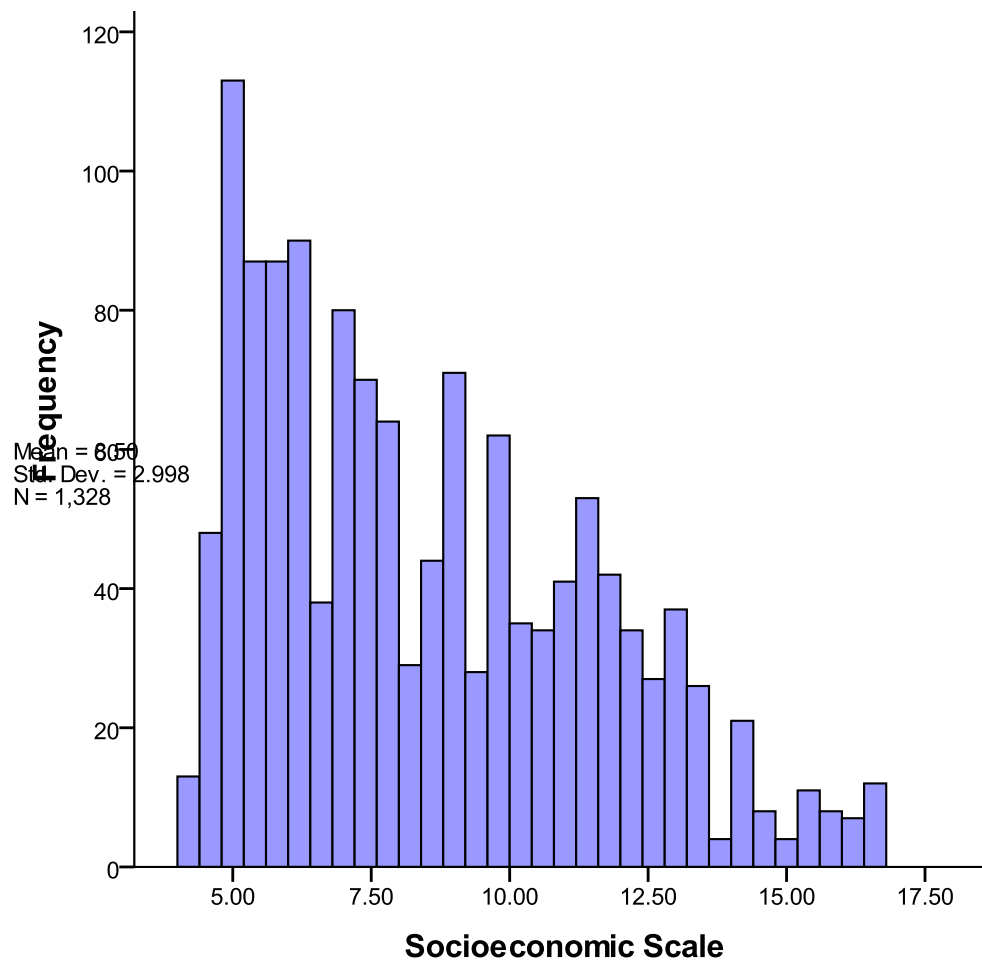
Figure 3-3. Frequency distribution of PCA based socioeconomic scale.

3.2. Rate of illness

Table 3-2 shows that the overall rate of illness in the past two week was 7.1% with a slightly higher rate in females not reaching statistical significance (7.9% vs. 6.3%) ($\chi2$ = 1.3, p = 0.251). On the other hand, the rate of illness in the past month was slightly more than double (16.6%) with even a wider different between genders but still higher proportion of females (14.0 vs. 19.0%) ($\chi2$ = 5.9, p = 0.015). The same pattern continues for the rate of illness in the past two months and past six months with only statistically significant different in the past two months ($\chi2$ = 6.4, p = 0.011).

With regard to age, the rate of illness in the past two weeks ranges from the 5.2% in the 45-64 years age group to 8.6% in the less than 15 years without been statistically significant ($\chi2$ = 2.9, p = 0.412). Other reported time intervals show a similar trend.

The differences between the socioeconomic quintiles range from 6.2% in the very high to 8.5% in the low quintile, 14.4% in the intermediate to 18.3% in the very low quintile and 24.8% in the very high to 30.6% in the high quintile for the past two weeks, past month and past two months. Although a pattern of higher rate illness in the lower quintile and vice versa can be discerned but this pattern is not consistent and the differences are not statically significant ($\chi2 = 4.1$, p = 0.289 for the six month period).

Table 3-2. Rate of illness in the past 2 weeks, month, 2 months and 6 months.

Variables	Past 2 weeks		Past month		Past 2 months		Past 6 months	
	No.	(%)	No.	(%)	No.	(%)	No.	(%)
Gender								
Male	41	(6.3)	92	(14.0)	156	(23.8)	302	(46.1)
Female	53	(7.9)	128	(19.0)	202	(30.0)	344	(51.1)
Age								
<15	16	(8.6)	40	(21.6)	59	(31.9)	99	(53.5)
15-44	56	(7.6)	123	(16.7)	201	(27.3)	352	(47.9)
45-64	16	(5.2)	45	(14.6)	74	(23.9)	150	(48.5)
≥65	6	(6.1)	12	(12.1)	24	(24.2)	45	(45.5)
Socioeconomic quintile								
Very Low SES	20	(7.9)	46	(18.3)	69	(27.4)	116	(46.0)
Low SES	21	(8.5)	42	(17.0)	66	(26.7)	118	(47.8)
Intermediate SES	16	(5.8)	40	(14.4)	70	(25.3)	137	(49.5)
High SES	20	(7.2)	50	(18.0)	85	(30.6)	150	(54.0)
Very High SES	17	(6.2)	42	(15.3)	68	(24.8)	125	(45.6)

These patients presented with various illnesses. Table 3-3 shows the breakdown of these episodes of illness by chief complaint. The commonest presentation was pain in general in different parts of the body (details below). About half (50.2%) of the patients presentation was pain with slightly higher proportion in female (52.5% vs. 44.7%) followed by symptoms related to enlarged tonsils with slightly higher incidence in males

(14.2% vs. 12.0%). Other presentations in decreasing order of frequency included: cough (11.0%), shortness of breath (8.2%), fever (7.2%), diarrhea (4.8%), vomiting (4.2%) and urinary problems (0.9%). Cough, diarrhea and urinary problems were higher in males while fever and shortness of breath were more commonly reported among females.

Table 3-3. Presentation of the last illness

Chief complaint	Male		Female		Total	
	No.	(%)	No.	(%)	No.	(%)
Pain	211	(44.7)	253	(52.5)	464	(50.2)
Enlarged tonsils	67	(14.2)	58	(12.0)	125	(13.5)
Cough	63	(13.3)	39	(8.1)	102	(11.0)
Shortness of breath	35	(7.4)	41	(8.5)	76	(8.2)
Fever	26	(5.5)	41	(8.5)	67	(7.2)
Diarrhea	31	(6.6)	13	(2.7)	44	(4.8)
Vomiting	19	(4.0)	20	(4.1)	39	(4.2)
Urine problems	7	(1.5)	1	(0.2)	8	(0.9)
Others	13	(2.8)	16	(3.3)	29	(3.1)

The breakdown for pain experienced by the patients is shown in Table 3-4. Abdominal and generalized body pain came at the top of the list with almost equal proportions (17.4% and 17.2% respectively). These two common sites were followed by two others: head and upper respiratory pain related to tonsils (11.7% and 11.1% respectively). Other sites in decreasing order of frequency included: flanks (8.7%), back (8.3%), limbs (8.1%), teeth (4.9%), joints (3.8%), chest (3.6%), eye (2.4%), and others (2.6%). In general, the incidence was similar for both genders except for abdominal pain, headache and backache which were more commonly reported among females and pain from flanks and eye the other way around.

Table 3-4. Distribution of site of pain

Site of pain	Male		Female		Total	
	No.	(%)	No.	(%)	No.	(%)
Generalized	40	(16.9)	46	(17.9)	86	(17.4)
Abdomen	36	(15.2)	49	(19.1)	85	(17.2)
Head	24	(10.1)	34	(13.2)	58	(11.7)
Upper respiratory	28	(11.8)	27	(10.5)	55	(11.1)
Flanks	25	(10.5)	18	(7.0)	43	(8.7)
Back	17	(7.2)	24	(9.3)	41	(8.3)
Limbs	19	(8.0)	21	(8.2)	40	(8.1)
Teeth	14	(5.9)	10	(3.9)	24	(4.9)
Joints	9	(3.8)	10	(3.9)	19	(3.8)
Chest	9	(3.8)	9	(3.5)	18	(3.6)
Eye	9	(3.8)	3	(1.2)	12	(2.4)
Others	7	(3.0)	6	(2.3)	13	(2.6)

3.3. Health seeking behavior during the last illness

In response to the health problems listed in the previous two tables, the patients took different courses of actions: some did nothing (3.9%) and only waited for the disease to resolve spontaneously while others (5.3%) preferred self-treat. On the other hand, the majority sought outside medical help as shown in Table 3-5.

With regard to the first group who chose to do nothing and wait, the table shows that about twice were females (5.2% vs. 2.6%). Among the age groups, the highest proportion was for the 45-64 years old age group (5%), almost twice the rate of under 15 years old. More diverse responses were reported: the highest rate of doing nothing in response to illness was among those with secondary then primary education and the lowest among those with higher levels of education. The response of different socioeconomic levels was more homogenous but showing a direct relations with the highest proportion (5.2%) among the highest and the lowest (3.3%) among the lowest socioeconomic quintiles. For

these figures to be more meaningful, breakdown by other variables will help explain the reasons behind this passive behavior which is done in the next table.

In the second group who preferred to choose self-treatment, males were slightly more than females (6.3% vs. 4.4%). A similar pattern of close figures is seen among different age groups with the highest rate of self-treatment (5.8%) among the highest age group (≥65 years old) and the lowest (3.4%) among the lowest age group (<15 years old). The response of the various socioeconomic and education levels were more diverse. The highest rate was reported among patients with higher levels (20% among postgraduate and 8.8% among college graduates) of education and the lowest (3.3%) among intermediate levels. On the other hand, the highest rate (9.7%) was among intermediate and the lowest among low socioeconomic quintiles with others having a rate similar to the average.

The third group who did seek some sort of outside medical help was by far the largest one. The rate of seeking outside help was almost the same (91.1% and 90.4% for males and females respectively) in both genders and similar results were reported for different age groups which were close to the average rate of 90.7%. On the other hand, the different educational groups showed most variations with the highest rate among intermediate (93.4%) and the lowest rate among the higher educational levels (80% and 86.3% for postgraduate and college graduates respectively). With respect to the socioeconomic level, the figures were more close to the average with the highest rate being reported among the low (94.3%) and the lowest among intermediate (86.9%) socioeconomic levels.

Table 3-5. Health seeking behavior during the last illness.

Variables	Did nothing		Self-treatment		Outside help		Total	
	No.	(%)	No.	(%)	No.	(%)	No.	(%)
Gender								
Male	11	(2.6)	26	(6.3)	379	(91.1)	416	(100.0)
Female	22	(5.2)	19	(4.4)	386	(90.4)	427	(100.0)
Age								
<15	3	(2.5)	4	(3.4)	111	(94.1)	118	(100.0)

Variables	Did nothing		Self-treatment		Outside help		Total	
	No.	(%)	No.	(%)	No.	(%)	No.	(%)
15-44	18	(3.9)	26	(5.7)	413	(90.4)	457	(100.0)
45-64	10	(5.0)	11	(5.5)	178	(89.4)	199	(100.0)
≥65	2	(2.9)	4	(5.8)	63	(91.3)	69	(100.0)
Education								
Illiterate	5	(3.2)	9	(5.8)	141	(91.0)	155	(100.0)
Primary	8	(3.5)	10	(4.3)	213	(92.2)	231	(100.0)
Intermediate	4	(3.3)	4	(3.3)	114	(93.4)	122	(100.0)
Secondary	9	(7.8)	5	(4.3)	101	(87.8)	115	(100.0)
Institute	1	(1.2)	6	(7.4)	74	(91.4)	81	(100.0)
College	5	(4.9)	9	(8.8)	88	(86.3)	102	(100.0)
Post-graduate	0	(0.0)	2	(20.0)	8	(80.0)	10	(100.0)
Occupation								
Highly skilled	2	(5.7)	1	(2.9)	32	(91.4)	35	(100.0)
Skilled professionals	5	(2.6)	14	(7.4)	171	(90.0)	190	(100.0)
Non-skilled	4	(3.3)	7	(5.7)	111	(91.0)	122	(100.0)
Housewives	12	(5.9)	7	(3.4)	185	(90.7)	204	(100.0)
Students	8	(4.0)	13	(6.5)	178	(89.4)	199	(100.0)
Preschool children	1	(3.7)	0	(0.0)	26	(96.3)	27	(100.0)
Socioeconomic quintile								
Very Low SES	5	(3.3)	6	(4.0)	139	(92.7)	150	(100.0)
Low SES	6	(3.8)	3	(1.9)	149	(94.3)	158	(100.0)
Intermediate SES	6	(3.4)	17	(9.7)	153	(86.9)	176	(100.0)
High SES	7	(3.8)	9	(4.8)	170	(91.4)	186	(100.0)
Very High SES	9	(5.2)	10	(5.8)	154	(89.0)	173	(100.0)

3.4. Choice of service provider

For those who did seek some sort of external medical help as the initial response to their illness, Table 3-6 shows these diverse therapeutics options they utilized. Overall, the most widely used medical services were private doctor clinics with slightly less than half (44.8%) of all patients seeking health care. The next most common service was that of clinics run by nurses or medical assistants with over a fifth (21.8%) utilizing this service as their initial health care seeking behavior. The next health service in the list in decreasing order of use was the emergency department of major hospitals with a slightly less rate of utilization (17.4%) than the previous one. About tenth (9.4%) resorted to PHCCs that run in the afternoon and the least (6.5%) used service was that of public health centers that run in the afternoon.

When coming to the breakdown of the above mentioned overall figures, the table shows that females are more likely (47.4%) to use a private clinic compared to males (42.2%) but not statistically significant ($\chi2 = 5.7$, $p = 0.218$). Among the age groups, the rate was higher in older age groups (53.4% and 52.4 for 45-64 and ≥65 years old respectively) and lowest (31.5%) among the youngest age group. The rate of private clinic utilization showed most variation among the different educational levels. The highest rate was among post-graduates and those who have graduated from institutes (62.2% and 62.2% respectively) which is almost double the rate of use among patients having an intermediate educational level. Other groups were more or less close to the general average. The rate of use among different occupations shows variation but not as wide as that of educational level. The highest rate was reported among skilled as well as highly skilled professionals (56.1% and 53.1% respectively) and the lowest rates was among students (34.8%) and those who care for preschool children (34.6%) ($\chi2 = 34.5$, $p = 0.023$). Among different socioeconomic levels, the rate of private clinic use shows a positive association with socioeconomic scale with the highest use rate (57.1%) among the highest and the lowest (39.6%) among the lowest socioeconomic quintiles ($\chi2 = 27.5$, $p = 0.036$).

The rate of utilizing private nurse and medical assistant clinics (referred to as nurse clinics collectively for the sake of simplicity) shows a wider variation across the different dimensions of demographic characteristics compared to the medical doctors' private

clinics. In contrast to medical doctors clinics, nurse clinics seem to attract more males than females (23.7% and 19.9 respectively) but the difference is smaller to show statistical significance ($\chi2$ = 5.7, p = 0.218). The rate of use among age groups shows an inverse relationship with the highest rate (30.6%) among the lowest age groups and vice versa (4.8% among ≥65 years old). Education groups also show wide variation with the highest rate (35%) among the intermediate education level and the lowest (0.0%) among those having a postgraduate degree. Surprisingly, the rate among illiterate patients (12.8%) is much below the average (almost half) even lower than those with relatively higher education levels (23.8% for secondary education). Most of the occupation groups show little variation around the overall average with the highest rate among students (27.5%) and those who care for preschool children (26.9%) and lowest rate among housewives (18.9%) and highly skilled professionals (18.8%). These figures are consistent with those mentioned above related to age as there is a dimension of time in the occupation variable. With regard to the socioeconomic variable, it seems that all socioeconomic levels are making use of nurse's clinics with slightly lower than average rate for the highest quintile (15.6%).

The emergency department is a different story because people are using it for different reasons compared to doctor or nurse clinics. The difference between the utilization rate of both genders is small with a somewhat higher rate for males compared to females (19.3% and 15.5% respectively) but not statically significant ($\chi2$ = 5.7, p = 0.218). The rate among all age groups is almost the same as the overall average of 17.4% except for the eldest age group which is significantly different (28.6%) from the other groups. The education dimension also does not carry much surprise except for the institute education level that has the lowest reported use rate (5.4%) of emergency department. The postgraduate level also reports a similar high percentage of use (25.0%) but it does not seem to be significant due to small number of cases. Different occupation groups report more or less similar rates of use around the average except for the rate among skilled professional who had the lowest rate (9.9%). The variation is even less with the socioeconomic groups with the highest rate of 20.3% among the intermediate and the lowest rate among both extremes quintiles (14.4% and 14.9% for the very low and the very high quintiles respectively).

The PHCCs is yet another different issue with its peculiarities. Almost an identical proportion of male and females are reported to use this service (9.5% and 9.4% respectively). The rate of use among the different age groups is more or less similar to the overall average of 9.4% except for the lower than 15 years old age group which had the highest rate (15.3%). The PHCCs utilization rate among the different education levels shows an inverse linear relationship with a high rate (12.1%) among illiterates and the lowest among college (4.5%) and those holding a post-graduate degree who did not report any use. The only exception in this trend is the institute groups which reported the highest rate (13.5%) among the groups. The various occupation groups show the most variation with the highest use rate among the caregivers of preschool children (15.4%) and the lowest among highly skilled professional who did not report any use. As expected, the lowest socioeconomic level reported the highest use rate (15.8%) and all other groups reported slightly lower than average rate with the low group reporting the lowest (6.7%).

With regard to the use rate of public health centers that run in the afternoon hours, the table shows that female are more likely to make use of this medical service than males (7.8% and 5.3% respectively) but the difference is not statistically significant. The age groups show a similar trend but the education dimension shows wider variations with the highest (10.6%) among intermediate and the lowest (2.7%) among the institute education levels. With regard to occupation, the lowest (3.5%) is reported among the skilled professionals but the highest use rate (12.5%) is surprisingly among the highly skilled professionals. As expected, the use rate among different socioeconomic groups is inversely proportional to the socioeconomic scale with the highest (10.1%) among the lowest and lowest among the high and highest quintiles (4.1% and 4.5% respectively).

Table 3-6. Initial response for seeking external medical help.

Variables	Private clinic		Nurse		Emergency		PHCC		Public HC		Total	
	No.	(%)	No.	(%)	No.	(%)	No.	(%)	No.	(%)	No.	(%)
Gender												
Male	160	(42.2)	90	(23.7)	73	(19.3)	36	(9.5)	20	(5.3)	379	(100.0)
Female	183	(47.4)	77	(19.9)	60	(15.5)	36	(9.3)	30	(7.8)	386	(100.0)
Age												
<15	35	(31.5)	34	(30.6)	19	(17.1)	17	(15.3)	6	(5.4)	111	(100.0)
15-44	180	(43.6)	102	(24.7)	66	(16.0)	36	(8.7)	29	(7.0)	413	(100.0)
45-64	95	(53.4)	28	(15.7)	30	(16.9)	14	(7.9)	11	(6.2)	178	(100.0)
≥65	33	(52.4)	3	(4.8)	18	(28.6)	5	(7.9)	4	(6.3)	63	(100.0)
Education												
Illiterate	60	(42.6)	18	(12.8)	34	(24.1)	17	(12.1)	12	(8.5)	141	(100.0)
Primary	86	(40.4)	51	(23.9)	46	(21.6)	22	(10.3)	8	(3.8)	213	(100.0)
Intermediate	37	(32.5)	40	(35.1)	15	(13.2)	10	(8.8)	12	(10.5)	114	(100.0)
Secondary	51	(50.5)	24	(23.8)	15	(14.9)	5	(5.0)	6	(5.9)	101	(100.0)
Institute	46	(62.2)	12	(16.2)	4	(5.4)	10	(13.5)	2	(2.7)	74	(100.0)
College	49	(55.7)	15	(17.0)	13	(14.8)	4	(4.5)	7	(8.0)	88	(100.0)

Variables	Private clinic		Nurse		Emergency		PHCC		Public HC		Total	
	No.	(%)	No.	(%)	No.	(%)	No.	(%)	No.	(%)	No.	(%)
Post-graduate	5	(62.5)	0	(0.0)	2	(25.0)	0	(0.0)	1	(12.5)	8	(100.0)
Occupation												
Highly skilled professionals	17	(53.1)	6	(18.8)	5	(15.6)	0	(0.0)	4	(12.5)	32	(100.0)
Skilled professionals	96	(56.1)	39	(22.8)	17	(9.9)	13	(7.6)	6	(3.5)	171	(100.0)
Non-skilled occupations	46	(41.4)	25	(22.5)	21	(18.9)	9	(8.1)	10	(9.0)	111	(100.0)
Housewives	85	(45.9)	35	(18.9)	31	(16.8)	17	(9.2)	17	(9.2)	185	(100.0)
Students	62	(34.8)	49	(27.5)	34	(19.1)	24	(13.5)	9	(5.1)	178	(100.0)
Preschool children	9	(34.6)	7	(26.9)	4	(15.4)	4	(15.4)	2	(7.7)	26	(100.0)
Socioeconomic quintile												
Very Low SES	55	(39.6)	28	(20.1)	20	(14.4)	22	(15.8)	14	(10.1)	139	(100.0)
Low SES	60	(40.3)	39	(26.2)	29	(19.5)	10	(6.7)	11	(7.4)	149	(100.0)
Intermediate SES	64	(41.8)	34	(22.2)	31	(20.3)	13	(8.5)	11	(7.2)	153	(100.0)
High SES	76	(44.7)	42	(24.7)	30	(17.6)	15	(8.8)	7	(4.1)	170	(100.0)
Very High SES	88	(57.1)	24	(15.6)	23	(14.9)	12	(7.8)	7	(4.5)	154	(100.0)

3.5. Reasons for choosing service provider

The possible reasons for deciding whether to use the above mentioned health services are listed in Table 3-7. At the top of the list comes the group labeled as "appropriate service" meaning that the health care seeker thinks that his/her choice of service provider was based on the subjective perception that this is the most appropriate medical service for their health condition. Almost a third (32.0%) fell into this category. The next most widely cited reason for choosing a specific service provider, as might be expected, is shown to be financial. Slightly more than one-fifth (21.3%) reported that the main reason for their health care seeking decision making process was cost. A similar but somewhat lower rate (19.1%) reported that geographical distance (proximity) to the service provider was the deciding factor. A further group combined both cost proximity as the main reason for visiting nurse clinics. Further down the list, 13% of the health care seekers said that fame of the service provider was the reason that made them choose that specific service provider. This category was almost invariably related to private doctors' clinics with a further lower proportion linked to nurse clinics.

The breakdown of the above mentioned possible reason that drive the health care seeking behavior across the gender variable does not show much variation and the slight differences are not statistically significant ($\chi2 = 4.8$, $p = 0.568$). The same is true for the variation among the different age groups. Although both cost and proximity factors show an inverse trend with age but the reported differences are not statistically significant either ($\chi2 = 25.9$, $p = 0.1$).

In contrast, these factors show significant difference with regard to both education and socioeconomic levels. As might be expected, cost concern has an inverse relationship with both variables ranging from as high as 27.6% in the illiterate to none (0.0%) among the post-graduate group. The same with socioeconomic levels: the cost factor was a concern for as high as 40.3% of the lowest and less than tenth (9.6%) for the very high socioeconomic quintiles.

Choosing the service provider based on the perceived appropriateness of the service for their condition did not differ much across both variables. The same applies to the case when the decision making process is based on the fame of the provider.

Table 3-7. Reasons for choosing service provider.

Variables	Cost		Proximity		Fame		Recommended		Appropriate		Only Choice		Acquaintance	
	No.	(%)	No.	(%)	No.	(%)	No.	(%)	No.	(%)	No.	(%)	No.	(%)
Gender														
Male	90	(23.0)	78	(19.9)	52	(13.3)	32	(8.2)	114	(29.2)	18	(4.6)	7	(1.8)
Female	77	(19.5)	72	(18.3)	54	(13.7)	28	(7.1)	137	(34.8)	15	(3.8)	11	(2.8)
Age														
<15	32	(27.8)	25	(21.7)	16	(13.9)	5	(4.3)	31	(27.0)	5	(4.3)	1	(0.9)
15-44	96	(22.6)	86	(20.3)	50	(11.8)	31	(7.3)	138	(32.5)	14	(3.3)	9	(2.1)
45-64	66	(12.7)	21	(17.8)	22	(18.6)	11	(9.3)	37	(31.4)	8	(6.8)	4	(3.4)
≥65	20	(14.6)	4	(9.8)	5	(12.2)	3	(7.3)	14	(34.1)	6	(14.6)	3	(7.3)
Education														
Illiterate	40	(27.6)	22	(15.2)	18	(12.4)	7	(4.8)	41	(28.3)	10	(6.9)	7	(4.8)
Primary	52	(23.7)	46	(21.0)	27	(12.3)	10	(4.6)	73	(33.3)	8	(3.7)	3	(1.4)
Intermediate	29	(24.6)	29	(24.6)	17	(14.4)	9	(7.6)	31	(26.3)	3	(2.5)	0	(0.0)
Secondary	18	(17.8)	16	(15.8)	16	(15.8)	7	(6.9)	40	(39.6)	2	(2.0)	2	(2.0)
Institute	9	(12.0)	7	(9.3)	7	(9.3)	14	(18.7)	32	(42.7)	2	(2.7)	4	(5.3)
College	10	(10.9)	25	(27.2)	16	(17.4)	9	(9.8)	27	(29.3)	4	(4.3)	1	(1.1)

Variables	Cost		Proximity		Fame		Recommended		Appropriate		Only Choice		Acquaintance	
	No.	(%)	No.	(%)	No.	(%)	No.	(%)	No.	(%)	No.	(%)	No.	(%)
Post-graduate	0	(0.0)	1	(11.1)	2	(22.2)	1	(11.1)	3	(33.3)	2	(22.2)	0	(0.0)
Socioeconomic quintile														
Very Low SES	58	(40.3)	17	(11.8)	21	(14.6)	9	(6.3)	32	(22.2)	5	(3.5)	2	(1.4)
Low SES	37	(24.3)	32	(21.1)	17	(11.2)	9	(5.9)	47	(30.9)	5	(3.3)	5	(3.3)
Intermediate SES	28	(17.5)	36	(22.5)	15	(9.4)	12	(7.5)	56	(35.0)	10	(6.3)	3	(1.9)
High SES	29	(16.8)	35	(20.2)	23	(13.3)	12	(6.9)	67	(38.7)	6	(3.5)	1	(0.6)
Very High SES	15	(9.6)	30	(19.2)	30	(19.2)	18	(11.5)	49	(31.4)	7	(4.5)	7	(4.5)

Table 3-8 shows the breakdown of each reason for choosing certain health care providers by the possible service providers. With regard to choosing a service based on the perceived appropriateness to the patient's specific health issues, the largest percentage is for doctor private clinics (68.6%). This means that more than two-thirds of the respondents thought that the services provided by the private doctor clinics are the best available choice. This was followed by emergency department where almost a fifth (17.8%) thought that this is the appropriate service. This makes sense because emergency department provides services that are unique and cannot be provided by other service providers. The least chosen service providers based on perceived appropriateness were PHCCs and public HCs (3.3% and 0.8% respectively).

In contrast to appropriateness, the cost variable shows a completely opposite trend. The highest service providers chosen taking cost into consideration were nurse clinics (33.3%) followed by close to a quarter for emergency department (26.9%) and the least was for private doctor clinics with only 5.8%.

With regard to geographic distance, nurse clinics scored the highest (46.3%) followed distantly down the list by PHCCs and private clinics (18.1% and 16.1% respectively) and the lowest reported rated were for emergency department and public HCs (8.1% and 11.4% respectively).

As has been referred to previously, by far the highest rate of patients who based their health care seeking decision on fame of a specific service provider was private clinics, where almost three-quarters (74.8%) did so. This very high proportion was followed by nurse clinics but with a much lower figure (14.4%). Other providers reported negligible proportion of less than 5%. This also makes sense because in both private doctor as well as nurse clinics are almost invariably run by one service provider and here brand issues and customer loyalty comes into play.

Closely related to fame is the "recommended by someone" reason for choosing a provider. The figures follow the previous pattern but even with more extremes values: private doctors' clinics scored 82.5% while the figure for nurse clinics was only 7%. Other service providers even did not reach previous limits and were around 3.5%.

When people are obliged to use a service provider, most likely it will be the emergency department. The vast majority (80.6%) of the patients resorted to the emergency department because it was the only available choice at the time of their need for the medical care. Next in the list but with almost 8 times frequency comes PHCCs (9.7%) which is the only available option in the morning hours for general conditions. The last reason for choosing a service provider based on personal acquaintance goes overwhelmingly to private doctor clinics (94.4%). These highly diverse figures were statistically significant at a p value of < 0.001 and a $\chi 2$ of 455.3.

Table 3-8. Reasons for choosing a service provider cross tabulated against different service providers.

Reasons	Private clinic		Nurse		Emergency		PHCC		Public HC		Total	
	No.	**(%)**	**No.**	**(%)**	**No.**	**(%)**	**No.**	**(%)**	**No.**	**(%)**	**No.**	**(%)**
Cost	9	(5.8)	52	(33.3)	42	(26.9)	30	(19.2)	23	(14.7)	156	(100.0)
Proximity	24	(16.1)	69	(46.3)	12	(8.1)	27	(18.1)	17	(11.4)	149	(100.0)
Fame	77	(74.8)	15	(14.6)	5	(4.9)	2	(1.9)	4	(3.9)	103	(100.0)
Recommended	47	(82.5)	4	(7.0)	2	(3.5)	2	(3.5)	2	(3.5)	57	(100.0)
Appropriate	166	(68.6)	23	(9.5)	43	(17.8)	8	(3.3)	2	(0.8)	242	(100.0)
Only choice	1	(3.2)	1	(3.2)	25	(80.6)	3	(9.7)	1	(3.2)	31	(100.0)
Acquaintance	17	(94.4)	0	(0.0)	0	(0.0)	0	(0.0)	1	(5.6)	18	(100.0)

3.6. Not seeking outside help

All these were about respondents who did seek some sort of external professional medical help. On the other hand, a significant minority chose to take a passive course of action and wait until the health problem resolves by itself. A similar proportion chose to use their skills and knowledge and try self-treatment. Table 3-9 shows the demographic characteristics of those who refrained from seeking any sort of external help and possible reasons for their behavior. The gender distribution does not show much difference ($\chi 2 = 0.1$, p = 0.723). The same applies for age and socioeconomic variables but with more variation. The highest proportion was reported among the 15-44 years old age group who are supposed to be young and healthy and the least was reported among both extremes of age (9.0% and 7.7% for <15 and ≥65 years old respectively) ($\chi 2 = 2.1$, p = 0.562). Among the socioeconomic groups, higher quintiles were more likely to avoid any external help compared to the two lowest quintiles but still not reaching statistical significance ($\chi 2 = 6.8$, p = 0.147).

Digging into the possible reasons of not seeking outside medical help, the table shows that almost half (47%) did so because they thought that the nature of the condition was mild and did not call for external help. On the other hand, a similar but somewhat lower percentage (42.1%) attributed the reason to the financial burden ($\chi 2 = 15.4$, p = 0.017).

Another reason that can play a big role in the health seeking behavior is trust in the capability of the service provider. Less than a quarter (2.8% plus 21.1%) expressed their above average trust in the capability of service providers.

Table 3-9. Characteristics of patients who did not seek outside help.

Variables	No.	(%)
Gender		
Male	37	(47.4)
Female	41	(52.6)
Age		
<15	7	(9.0)

Variables	No.	(%)
15-44	44	(56.4)
45-64	21	(26.9)
≥65	6	(7.7)
Socioeconomic quintile		
Very Low SES	11	(14.1)
Low SES	9	(11.5)
Intermediate SES	23	(29.5)
High SES	16	(20.5)
Very High SES	19	(24.4)
Reason		
Nature of the condition	9	(47.4)
Cost	8	(42.1)
Only available choice	2	(10.5)
Trust in service provider		
Do not trust	14	(19.7)
Slightly	11	(15.5)
Moderately	29	(40.8)
Much	15	(21.1)
Too much	2	(2.8)

3.7. Waiting before seeking outside help

People who become ill, even if they intend to seek external medical help, they may wait for some time depending on certain factors. Figure 3-4 shows frequency distribution of waiting time on a logarithmic scale. Four distinct time clusters can be seen. The first time cluster are those patients who waited less than an hour (less than 0 on the log scale) before seeking external medical help. The next cluster, which has the second highest frequency, pertains to patients who waited between 1 and 3 hours. The largest cluster is

for patients who waited between around 12 and 48 hours with the highest peak for 24 hours (1.38 on log scale). Although it seems that many people seem to give a 24 hour chance for the illness to resolve spontaneously but this unusually high peak is more likely to be due to round number bias. The same seems to apply for the next two clusters: the one just beyond 2 on the log scale which corresponds to one week and the small cluster at the end showing patients who waited about two weeks.
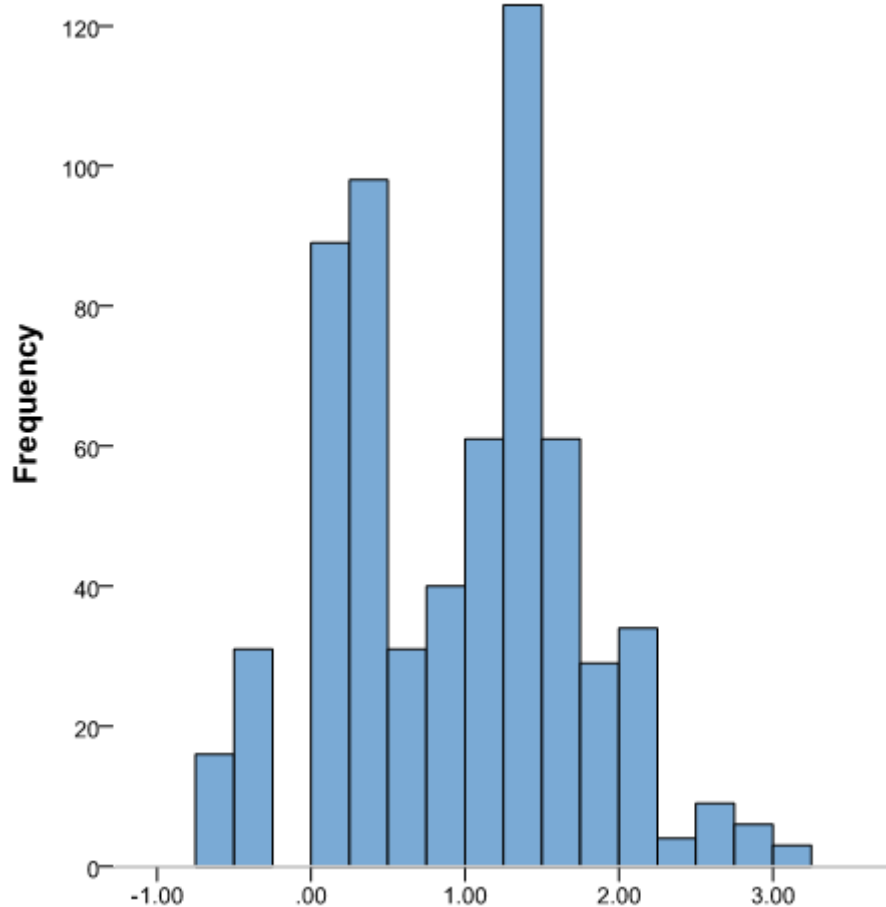
Figure 3-4. Waiting time before deciding to seek external help.

As can be observed, depicting the waiting time on a log scale is superior to grouping the time into arbitrary time intervals because these show natural breaks in the time data and the clusters can be seen distinctly. These natural breaks in data were used to divide the time intervals into logical groups as shown in Figure 3-5 which will be used as the base for analyzing behavior in relation to waiting before seeking help.
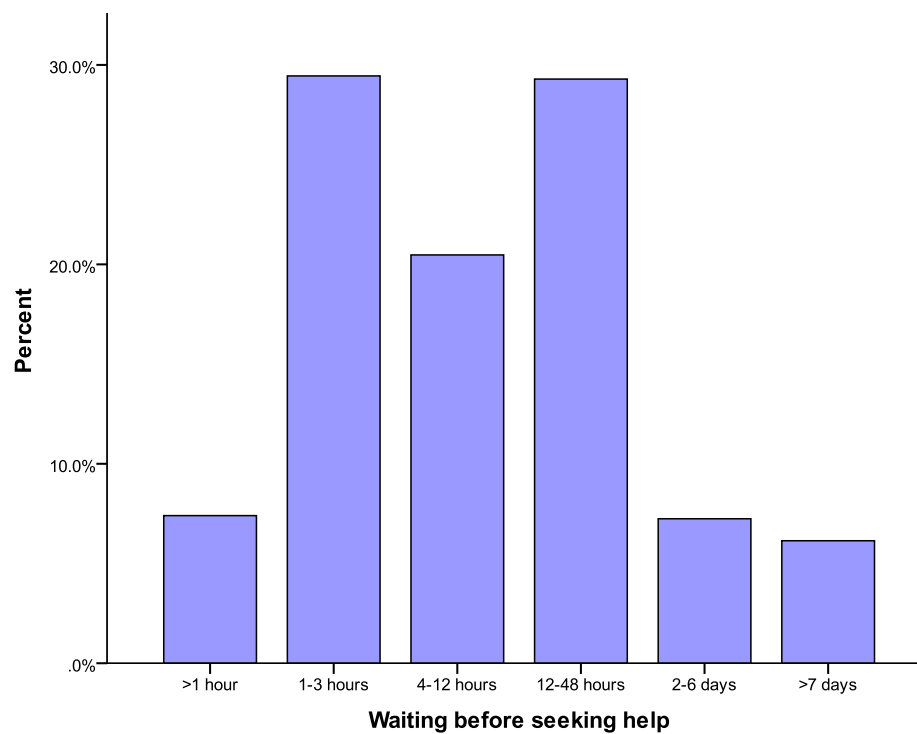
Figure 3-5. Categorizing waiting time before seeking help based on time clusters.

Table 3-10 shows the breakdown of waiting time intervals by demographic characteristics, perceived severity of the illness, trust in and choice of provider. Although the difference between various demographic variables is not statistically significant (gender: $\chi2 = 1.3$, p = 0.251, age: $\chi2 = 1.3$, p = 0.251, socioeconomic quintiles: $\chi2 = 1.3$, p = 0.251), still a distinct pattern can be discerned for the gender variable. Males are almost twice as likely as females to seek immediate care in first hour (9.5% and 5.3% respectively) while females are more likely to wait few days before seeking help (8.8% for females vs. 4.9% for males). With regard to the perceived severity of the illness, as expected, severe cases are more likely to seek immediate help (9.7%, 5.5% and 2% for severe, moderate and mild illnesses respectively) and vice versa for waiting more than a week. These differences are statistically significant at a $\chi2$ of 19.4 and a p of 0.035.

Trust in the provider does not seem to have a role in the decision to delay seeking help ($\chi2 = 16.7$, p = 0.671) but choice of provider does. Those who seek immediate help are more likely to go to the emergency department (17.8%) or nurse clinic (11.8%) compare to other providers. Those who resorted to emergency department are even more likely (43.9%) to go in the time between 1-3 hours then the rate decreases with time.

Table 3-10. Waiting before seeking help.

Variables	>1 hour		1-3 hours		4-12 hours		12-48 hours		2-6 days		>7 days	
	No.	(%)	No.	(%)	No.	(%)	No.	(%)	No.	(%)	No.	(%)
Gender												
Male	29	(9.5)	91	(29.7)	69	(22.5)	85	(27.8)	15	(4.9)	17	(5.6)
Female	17	(5.3)	93	(29.2)	61	(19.1)	100	(31.3)	28	(8.8)	20	(6.3)
Age												
<15	6	(6.8)	25	(28.4)	21	(23.9)	33	(37.5)	2	(2.3)	1	(1.1)
15-44	26	(7.6)	104	(30.2)	72	(20.9)	88	(25.6)	28	(8.1)	26	(7.6)
45-64	12	(8.6)	41	(29.3)	27	(19.3)	45	(32.1)	9	(6.4)	6	(4.3)
≥65	2	(3.8)	14	(26.4)	10	(18.9)	19	(35.8)	4	(7.5)	4	(7.5)
Socioeconomic quintile												
Very Low SES	4	(3.4)	36	(30.8)	28	(23.9)	31	(26.5)	11	(9.4)	7	(6.0)
Low SES	8	(6.7)	32	(26.9)	31	(26.1)	32	(26.9)	9	(7.6)	7	(5.9)
Intermediate SES	5	(4.2)	40	(33.9)	24	(20.3)	29	(24.6)	8	(6.8)	12	(10.2)
High SES	15	(10.2)	43	(29.3)	24	(16.3)	52	(35.4)	9	(6.1)	4	(2.7)
Very High SES	14	(11.3)	33	(26.6)	23	(18.5)	41	(33.1)	6	(4.8)	7	(5.6)
Severity												

Variables	>1 hour		1-3 hours		4-12 hours		12-48 hours		2-6 days		>7 days	
	No.	(%)	No.	(%)	No.	(%)	No.	(%)	No.	(%)	No.	(%)
Severe	23	(9.7)	77	(32.6)	57	(24.2)	57	(24.2)	14	(5.9)	8	(3.4)
Moderate	18	(5.5)	88	(26.8)	63	(19.2)	107	(32.6)	26	(7.9)	26	(7.9)
Mild	1	(2.0)	17	(34.0)	9	(18.0)	18	(36.0)	2	(4.0)	3	(6.0)
Trust in service provider												
Do not trust	7	(8.6)	22	(27.2)	19	(23.5)	18	(22.2)	10	(12.3)	5	(6.2)
Slightly	12	(9.1)	33	(25.0)	31	(23.5)	40	(30.3)	10	(7.6)	6	(4.5)
Moderately	13	(6.2)	59	(28.1)	44	(21.0)	67	(31.9)	15	(7.1)	12	(5.7)
Much	12	(9.2)	45	(34.4)	28	(21.4)	34	(26.0)	5	(3.8)	7	(5.3)
Too much	2	(14.3)	5	(35.7)	1	(7.1)	6	(42.9)	0	(0.0)	0	(0.0)
Provider												
Emergency	19	(17.8)	47	(43.9)	15	(14.0)	17	(15.9)	4	(3.7)	5	(4.7)
PHCC	2	(3.6)	18	(32.1)	14	(25.0)	13	(23.2)	5	(8.9)	4	(7.1)
Public HC	3	(7.1)	12	(28.6)	7	(16.7)	12	(28.6)	5	(11.9)	3	(7.1)
Private clinic	6	(2.1)	64	(22.9)	63	(22.5)	102	(36.4)	23	(8.2)	22	(7.9)
Nurse	16	(11.8)	42	(30.9)	30	(22.1)	41	(30.1)	4	(2.9)	3	(2.2)

3.8. Means of transport

After waiting for certain time as discussed above, people make their mind to go to the service provider and they use different means of transport as shown in Table 3-11.

In general, a little under a third either went on foot or used a taxi cab (28.3% and 28.7% respectively) but a relatively higher proportion used their private car (37.4%) and the lowest proportion was for bus (5.6%). There does not seem to be a difference between both genders ($\chi 2 = 2.6$, p = 0.464) but all other variable show statistically significant difference. Going on foot to the service provider seems to decrease with age and the situation reverses with the use of private car. The table shows that all age groups and socioeconomic levels are using cab service similarly. As expected, the rate of using bus is the highest (11.5%) among the very low and lowest (0.0%) among the very high socioeconomic quintiles. The case reverses for the use of private car. These differences are statistically significant at a $\chi 2$ of 82.1 and a p of <0.001.

Breakdown of means of transport by service provider shows more diverse figures ($\chi 2$ = 202.8, p = <0.001). Among those who go to a nurse, the majority (60.4%) do so on foot. On the other hand, almost half of those who consult a private doctor clinic or resort to the emergency department use their private car (45.6% and 46.2% respectively).

Table 3-11. Means of transport to the service provider.

Variables	On foot		Bus		Taxi		Private Car	
	No.	(%)	No.	(%)	No.	(%)	No.	(%)
Gender								
Male	107	(28.4)	23	(6.1)	99	(26.3)	148	(39.3)
Female	109	(28.2)	20	(5.2)	120	(31.1)	137	(35.5)
Age								
<15	35	(31.5)	10	(9.0)	30	(27.0)	36	(32.4)
15-44	133	(32.1)	16	(3.9)	111	(26.8)	154	(37.2)
45-64	40	(22.9)	14	(8.0)	53	(30.3)	68	(38.9)

Variables	On foot		Bus		Taxi		Private Car	
	No.	(%)	No.	(%)	No.	(%)	No.	(%)
≥65	8	(12.7)	3	(4.8)	25	(39.7)	27	(42.9)
Socioeconomic quintile								
Very Low SES	51	(36.7)	16	(11.5)	48	(34.5)	24	(17.3)
Low SES	54	(36.0)	13	(8.7)	45	(30.0)	38	(25.3)
Intermediate SES	42	(27.6)	7	(4.6)	47	(30.9)	56	(36.8)
High SES	45	(26.3)	7	(4.1)	33	(19.3)	86	(50.3)
Very High SES	24	(15.9)	0	(0.0)	46	(30.5)	81	(53.6)
Provider								
Emergency	14	(10.6)	6	(4.5)	51	(38.6)	61	(46.2)
PHCC	26	(36.1)	15	(20.8)	16	(22.2)	15	(20.8)
Public HC	27	(54.0)	4	(8.0)	9	(18.0)	10	(20.0)
Private clinic	48	(14.1)	14	(4.1)	123	(36.2)	155	(45.6)
Nurse	99	(60.4)	4	(2.4)	17	(10.4)	44	(26.8)

3.9. Arriving at service provider

Figure 3-6 shows the frequency distribution of arrival time at the service provider. The figure depicts and quantifies interestingly what is going on in 24 hours in the city with regard to health seeking behavior. As can been seen clearly, there are two main peaks of activity. Starting from midnight, only very few cases can be seen until 7 in the morning. After 8:00 am, which is the official starting working hours, the numbers increase steeply until reaching the first peak around 9:00 am. After 10:00 am, the rate of health care seeking slows down and a new wave of patients start to arrive at the service provider starting at 2:00 pm. This second wave of patients reach the highest peak (almost a third within 24 hours) around 4:00 pm then dwindles gradually and continues at a slow rate until before midnight.
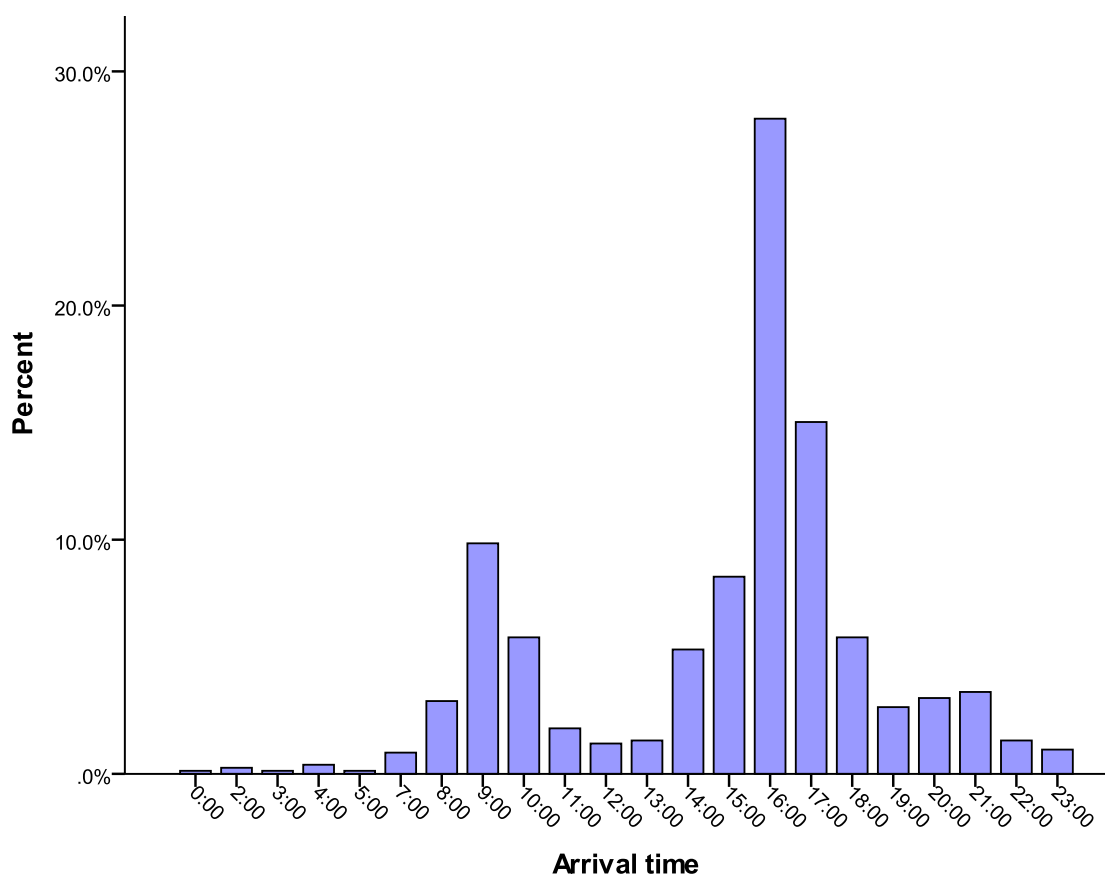
Figure 3-6. Time of arrival at service provider.

3.10. Outcome of seeking help

With regard to the perceived outcome of the seeking external medical help, Table3-12 shows that overall, about a third (34.7%) benefited and their health problem resolved within a reasonable amount of time. On the other hand, about a fifth (20.6%) of the patients reported that they did not get any benefit from the initial attempt and the majority (44.7%) reported partial improvement. There is no significant difference among gender, socioeconomic and perceived severity of illness. Among age groups, the youngest reported the highest response rate with more than half (53.2%). Choice of provider seems to play a role in the outcome. Visitors to nurse and public HCs reported the highest complete recovery rate (44.8% and 46.7% respectively). Partial response was the highest among those who consulted a private doctor clinic or the emergency department (48.8% and 47.5% respectively).

Table 3-12. Outcome of health seeking behavior.

Variables	No		Partial		Yes	
	No.	(%)	No.	(%)	No.	(%)
Gender						
Male	84	(21.7)	162	(41.9)	141	(36.4)
Female	76	(19.5)	185	(47.6)	128	(32.9)
Age						
<15	18	(16.2)	34	(30.6)	59	(53.2)
15-44	87	(20.5)	196	(46.1)	142	(33.4)
45-64	40	(22.2)	90	(50.0)	50	(27.8)
≥65	15	(25.0)	27	(45.0)	18	(30.0)
Socioeconomic quintile						
Very Low SES	37	(25.5)	64	(44.1)	44	(30.3)
Low SES	31	(21.4)	70	(48.3)	44	(30.3)
Intermediate SES	28	(18.1)	71	(45.8)	56	(36.1)
High SES	38	(21.8)	73	(42.0)	63	(36.2)
Very High SES	26	(16.6)	69	(43.9)	62	(39.5)
Severity of illness						
Severe	64	(22.9)	123	(43.9)	93	(33.2)
Moderate	74	(17.7)	193	(46.2)	151	(36.1)
Mild	18	(28.6)	26	(41.3)	19	(30.2)
Seeking help						
Emergency	30	(24.6)	58	(47.5)	34	(27.9)
PHCC	22	(32.8)	24	(35.8)	21	(31.3)
Public HC	9	(20.0)	15	(33.3)	21	(46.7)
Private clinic	69	(21.3)	158	(48.8)	97	(29.9)
Nurse	21	(13.6)	64	(41.6)	69	(44.8)

Those who did get benefit, they did so over different time intervals. Figure 3-7 shows cumulative frequency distribution across time (in days) for patients who benefited from their health seeking activities. The figure shows that about half of them responded to treatment in less than three days, about three-quarters in about a week and more than 90% in about two weeks.
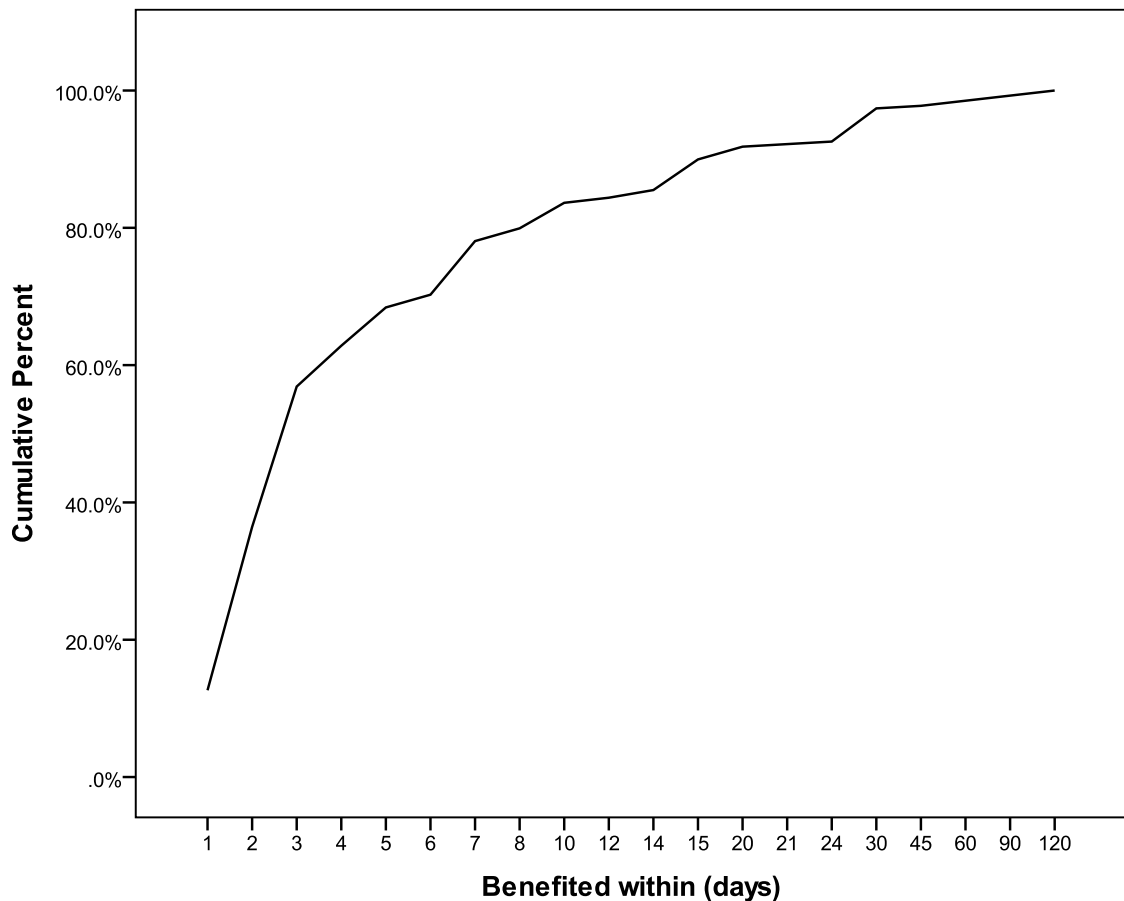
Figure 3-7. Cumulative frequency of improved patients over time.

3.11. Next therapeutic choice

For those who did not get benefit, they had to continue with their health care seeking behavior in one way or another. Table 3-13 shows the next choice of service providers in those who did not responded favorably to the initial attempt. A relatively large percentage did nothing and just waited. On the other hand, the majority who did seek another provider chose to consult a different private doctor clinic. Few chose to go back to the same provider (7.7%) and a similar number went to a nurse clinic. A

significant minority (2.4%) chose to go abroad the country for treatment while a similar proportion (2.6%) resorted to traditional medicine.

Table 3-13. Next choice for those who did not improve.

Next Choice	No.	(%)
Did nothing (waiting)	210	(41.4)
Private clinic	138	(27.2)
Same service provider	39	(7.7)
Nurse	39	(7.7)
PHCC	27	(5.3)
Public HC	15	(3.0)
Self-treatment	14	(2.8)
Traditional medicine	13	(2.6)
Abroad	12	(2.4)

3.12. Regression analysis

To explore possible predicting capabilities of some independent variables like demographic and illness characteristics, first bivariate associations were used in addition to various visualizing methods like matrix scatterplot and LOESS (Locally Weighted Scatterplot Smoothing) method. Then logistic regression models were used to analyze the relationship of independent variable and some dependent variables like choice of provider, illness outcome and satisfaction. In addition to the primary independent variables, other relevant factors were also explored in the regression models, such as gender, education, and socioeconomic status.

The results for the logistic regression between various dependent and independent variables are shown in Table 3-14 with the statistically significant variables shown in bold along with 95% confidence interval and p values.

With regard to the overall behavior of seeking external help versus non-seeking, only gender and perceived severity of illness were shown to have a statistically significant

relationship. The odds ratio of males versus females was 2.81 and that of perceived illness severity was 1.844.

About choosing various providers, most of the independent variables failed to show a statistically significant relationship. This was true especially for private doctor clinics and public HCs, in which case no variables showed significance. For the nurse provider, the odds ratio of males versus females was found to be 2.867. Gender was also found to be a factor in predicting the behavior of seeking help at an emergency department with an odd ratio of 3.119 of males versus females. But in this case, as might be expected, the variable perceived illness severity seems to have the largest contribution to the equation with an odd ratio of 3.857 of moderate and severe cases compared to mild ones.

Concerning the patient reported outcome of the illness, the only variable that showed statistical significance with an odds ratio of 0.986 for each year of life. In other words, the likelihood of responding to treatment decreases with each year of life with a 95% CI of 0.003-0.024.

Table 3-14. Odds ratio of selected independent variables against outcome variables realted to seeking health.

Variables	OR	95% CI	p value
Seeking external help (vs. not seeking)			
age (years)	1.011	(0.990 - 1.032)	0.305
Females (vs. males)	**2.281**	**(1.059 - 4.912)**	**0.035**
Lowest SES quintile (vs. higher)	0.887	(0.670 - 1.171)	0.398
Illiterate (vs. higher education levels	1.002	(0.797 - 1.258)	0.987
Mild (vs. moderate and severe)	**1.844**	**(1.039 - 3.272)**	**0.037**
Choosing private doctor clinic (vs. not seeking help)			
age (years)	1.020	(0.998 - 1.041)	0.072
Females (vs. males)	1.935	(0.880 - 4.252)	0.100
Lowest SES quintile (vs. higher)	0.906	(0.682 - 1.203)	0.497
Illiterate (vs. higher education levels	1.093	(0.862 - 1.383)	0.462
Mild (vs. moderate and severe)	1.564	(0.846 - 2.888)	0.153

Variables	OR	95% CI	p value
Choosing nurse (vs. not seeking help)			
age (years)	0.993	(0.969 - 1.018)	0.582
Females (vs. males)	**2.867**	**(1.244 - 6.604)**	**0.013**
Lowest SES quintile (vs. higher)	0.872	(0.634 - 1.2)	0.400
Illiterate (vs. higher education levels	0.940	(0.718 - 1.231)	0.653
Mild (vs. moderate and severe)	1.856	(0.936 - 3.677)	0.076
Choosing Emergency Department (vs. not seeking help)			
age (years)	1.005	(0.981 - 1.029)	0.678
Females (vs. males)	**3.119**	**(1.275 - 7.631)**	**0.013**
Lowest SES quintile (vs. higher)	1.098	(0.777 - 1.551)	0.596
Illiterate (vs. higher education levels	0.865	(0.664 - 1.125)	0.279
Mild (vs. moderate and severe)	**3.857**	**(1.941 - 7.662)**	**>0.001**
Choosing PHCCs (vs. not seeking help)			
age (years)	0.995	(0.972 - 1.019)	0.697
Females (vs. males)	**2.648**	**(1.034 - 6.778)**	**0.042**
Lowest SES quintile (vs. higher)	0.850	(0.624 - 1.157)	0.300
Illiterate (vs. higher education levels	0.812	(0.604 - 1.093)	0.170
Mild (vs. moderate and severe)	1.280	(0.594 - 2.759)	0.528
Choosing Public HCs (vs. not seeking help)			
age (years)	1.010	(0.982 - 1.038)	0.492
Females (vs. males)	1.709	(0.603 - 4.845)	0.314
Lowest SES quintile (vs. higher)	0.707	(0.487 - 1.028)	0.069
Illiterate (vs. higher education levels	1.058	(0.763 - 1.467)	0.735
Mild (vs. moderate and severe)	1.472	(0.605 - 3.583)	0.395
Outcome of illness (not improved vs. improved)			
age (years)	**0.986**	**(0.976 - 0.997)**	**0.010**
Females (vs. males)	0.955	(0.636 - 1.433)	0.822
Lowest SES quintile (vs. higher)	1.166	(0.997 - 1.362)	0.054

Variables	OR	95% CI	p value
Illiterate (vs. higher education levels	1.082	(0.949 - 1.232)	0.239
Mild (vs. moderate and severe)	1.058	(0.753 - 1.488)	0.744

3.13. Satisfaction with received health services

With regard to satisfaction with the received services, data about several dimensions of satisfaction were collected as shown in the questionnaire, these included: how long the patient waited for the service provider, how many other patients were waiting, quality of amenities, length of consultation time, patient's perception of the adequacy of consultation time length, whether the service provider explained the illness and/or treatment well to the patient, patient's perception of getting benefit and the number of days needed to get benefit if any.

All possible bivariate associations between these variables were explored and in most cases no distinct pattern were observed. For example, one might expect a positive relationship between the length of time waiting for service and the number of other patients waiting but this was not the case. The patients arrived at the service provider (mainly private clinics) and they found a large number of people waiting but they may have not waited long because they took an appointment in advance (called taking a number). The relation between the length of time and consultation time followed a similar pattern. Even the simple relation between consultation time and patient's perception of adequacy was not as straightforward as might be thought. The data showed that patient's perception of adequacy of consultation time is not the same for different providers. Table 3-15 shows the mean of consultation time that was perceived as enough and not enough across different health service providers. As can be seen, patient's perception of adequate consultation time was about 17 min for private health clinics while only about 7 min for a consulting a nurse and even lower for PHCCs.

Table 3-15. Patient's perception of consultation time.

Provider	Consultation length (min)	
	Enough	**Not Enough**
Emergency	14.3	7.7
PHCC	6.4	3.8
Public HC	8.4	4.4
Private clinic	17.2	10.4
Nurse	7.3	3.7

Based on that, Table 3-16 shows that the highest percentage of perceived adequacy of time for nurse clinics where almost three-quarters (76.3%) rated their encounter with the nurse as adequate. This was followed by a high rating rate for the private doctor clinics. Almost half of those who went to the emergency department had favorable view of its services and the least was reported for public HCs and PHCCs (40.9% and 33.8% respectively).

Table 3-16. Patient's perception of adequacy of consultation time.

Provider	Enough		Not Enough	
	No.	**(%)**	**No.**	**(%)**
Emergency	60	(50.4)	59	(49.6)
PHCC	22	(33.8)	43	(66.2)
Public HC	18	(40.9)	26	(59.1)
Private clinic	212	(65.8)	110	(34.2)
Nurse	116	(76.3)	36	(23.7)

CHAPTER 4
DISCUSSION

Better health of the population is the reason behind the existence of any health system around the world and beyond doubt its primary goal. Population health is a very complex outcome variable with many factors contributing to it. Up to recently in most of the developing countries, the main focus for improving the overall health of the population through health systems was on the provider side by building more hospitals and health centers, training more staff and importing more pharmaceuticals and medical equipment. Although these are important essential elements in the complex equation of population health but unfortunately the role of the consumer side was underestimated or even completely neglected for a long time (WHO 2000).

Everyday thousands of people become ill around the world and in our country. There are many questions about these illness episodes that can contribute to a better health care if the public health policy makers are more illuminated by their answers. Providing possible answers for some of the questions related to the way people behave in response to an episode of illness was the aim of this study which tries to answer and was based on these research questions:

- How many people became ill in the past two weeks or month in Erbil city?
- What are the socio-demographic characteristics of these people?
- What they do when becoming ill?
- What are the most common symptoms during their illness?
- How long do they wait before seeking professional medical help?
- How many of them actually seek external help and why?
- Which service provider they are most likely to use?
- What are the outcomes of their illness?
- How satisfied they were with the services they received from different health service providers including private and public health institutions?
- What was their next step if they did not get benefit from the initial health care seeking process?

This study is an attempt to shed some light on possible answers to these and some other related questions. The answer to these questions are not fixed but dynamic and change with time, place and person that is why in most developing countries they have been incorporated into surveys that are done at regular intervals, mostly annually as was shown from review of literature. To the best of researcher's knowledge, this is the first quantitative academic community-based study in the country to address the issue of how people behave in response to their ill health.

Community-based surveys are the only way that can provide representative sampling population that can offer relatively reliable answers to the above mentioned questions as they cannot be done in facility-based studies. The number of studies about health service topics is still far behind compared to clinical studies. Even with this small proportion of health service research, almost all are facility-based because it is much easier for a researcher to collect data from children and teachers in a school or patients from a health center or hospital rather than visit them in their home.

Conducting a community-based household survey poses great challenges to the researcher that is why it has been avoided to a large extent by researchers in Iraq in general and more specifically in Kurdistan region. Some of the challenges include: logistic, technical and methodological ones. Logistics and technical obstacles can be important but they have less serious impact on the outcome of the study compared to methodological challenges. One of the most important factors in any study is to have as representative sample as possible from the target population. The challenge is that in most developing countries sampling frames are not available to researchers so they resort to different alternatives to solve this problem. One of the widely adapted alternative sampling techniques is the cluster analysis. Although cluster analysis is much better than blind sampling but it has many shortcomings and this is one of the reasons this type of sampling has one of the largest design effect of 2.

This study has used an innovative method of sampling that is based on identifying residential patterns that is based on recent satellite images of the city. Although the use of satellite images for sampling has not been used in our country, only in the recent years it has been used by some researchers in other countries. One of the reasons is the wider availability of high quality satellite image at a relatively low cost which was in the military domain until recent years. Lowther *et al* (2009a and 2009b)

have used satellite images to select houses in Lusaka city in Zambia to assess the population immunity for measles virus. Satellite imagery has also been used in Karachi, Pakistan to construct a household GIS database for health studies (Ali *et al.* 2004). Another research used this method of spatial sampling for respiratory health and demographic survey in Delhi, India to select households that adequately represented exposure to ambient air pollution (Kumar 2007). This method was also used by Siri *et al* (2008) to design a census-weighted, spatially-stratified household sampling strategy to study the distribution of urban malaria. This sampling method is expected to be much more representative compared to traditional cluster design that is why the design effect for this study was assigned a lower value.

Another equally challenging issue facing researchers in the field of social sciences in general and more specifically in public health is how to determine the socioeconomic level of the study sample. The public health researcher are struggling much more compared to other pure social sciences with this issue because it is not their primary field of study but they are obliged to deal with it due the big role socioeconomic factors play in all health related variables. This study also used another innovative method of assigning relative weights to socioeconomic variables by using principal component analysis. As has been emphasized earlier, the socioeconomic status has great impact on the health seeking behavior of people especially in the developing countries. At the same time, measuring socioeconomic level is one of the greatest challenges facing any researcher in the field of social sciences due to its complex and dynamic nature.

One dimension of the complexity is the fact that any measure of socioeconomic status that is designed for specific community does not work except for that community or a very closely related one in time and place. Even for the same community, it may not measure the true situation after few years and have to be modified accordingly. One of the most complicating factors is the fact that Erbil population is a community in a very rapid transition and many variables that have long history of use elsewhere such as occupation does not hold true here. For example, we have many educated people who were primary school teachers four decades ago who may be poor by today's standards. Although they may possess a house of 500 square meters and mostly adopt healthy habits, but they may not have enough income to cope with increasing costs of

living these days. On the other hand, there are many people who are almost illiterate but became millionaires in a short time. Some of them may still live in the same old neighborhood.

Due to its complex nature, researchers in the field of health and related social sciences have suggested several methods in an effort to capture this elusive variable. One of the most reliable methods is to use monetary information such as the ones that combines income and expenditure. However, collecting accurate income and expenditure data is very difficult and practically impossible for a simple reason: people do not want to disclose such data. Collecting expenditure information may be a little bit less sensitive issue but still it is not practical during a survey which may take a lot of time and distract from the main aim of the study (Oakes *et al.* 2006; Vyas *et al.* 2006).

One aspect of showing the difficulty of obtaining income data is the fact that most people are usually reluctant to disclose anything related to details of their income like salary, how many real estate they own and the nature of their occupation and many of the non-governmental employees who do private business would like to describe their job in general terms such as "Kasib" which means "earner" or "bread-winner" even if they are relatively wealthy businessmen.

A more practical method of assessing the socioeconomic level is to collect data about ownership of certain durable household assets like cars, computers, washing machines, and dishwashing machine in addition to housing characteristics and infrastructure. Even with this simple looking method of assessing the socioeconomic status, a big challenge would be how to calculate the value of these assets. Several methods have been suggested to solve this problem. One of the most intuitive and straight forward methods is to calculate the monetary value of these assets taking into consideration age and depreciation (Filmer *et al.* 2001; Krefis *et al.* 2010). This method has several drawbacks because the monetary value of these assets may not reflect socioeconomic status. For example, a large proportion of households in Erbil city own at least one car but a much smaller proportion own a computer. Although an average car is worth of more than 1,000 computers in monetary value, still a computer may be a better indicator of the socioeconomic status.

Another method that have been suggested to give weights to the assets is to assign ordinal numbers but this method is very arbitrary as each indicator has the same weight (one) and so is given equal value in terms of socioeconomic level. A more evidence-based method is to do a regression test between the possible variables with an outcome that represents the socioeconomic status of the same population from another study that have been conducted recently. This is one of the best methods but unfortunately may be not practical due to unavailability of such a study (Vyas *et al.* 2006; Howe *et al.* 2012).

A more recent methods to develop a socioeconomic index is to use Principal Component Analysis (PCA) which is a multivariate statistical technique that captures the underlying patterns by reducing a complex set of variable into few dimensions (Filmer *et al.* 2001; Rutstein *et al.* 2004; Hosseinpoor *et al.* 2007; Steinhardt *et al.* 2009; Howe *et al.* 2012).

The main tool used for data collection was a custom developed questionnaire that was based on previous research and adapted to the local community. The questionnaire was designed with several issues in mind most importantly the logical flow of questions that follows the research questions above. This facilitated the data collection process and provided a base for coherent and logical flow of information in the results chapter.

This study used a relatively large and representative sample size of 1,328 individuals from 442 household and the number of individuals per household was restricted to an average of 3 to avoid loss of statistical power. The sample population structure is fairly similar to the target population of Erbil city in terms of demographic characteristics (Table 3-1, Figure 3-1 and Figure 3-2) like gender, age groups, socioeconomic, education and family size variables compared to recent data on population statistics compiled by Kurdistan Region Statistical Office (KRSO 2010). This fairly representative sample owes to the innovative method sampling technique and relatively large sample size. The method of age grouping use in this study which divides years of life into 0-14, 15-44, 45-64 and 65 and above was adopted because it is adopted by many researcher in the public health field and especially WHO publications (Broussard *et al.* 1993; Lionis *et al.* 1996; Ljung *et al.* 2005). The rationale behind this grouping is that it corresponds to certain characteristics of people

who fall into these age groups. For example, the 15-44 years old age group are the young who are usually free from most diseases while the next group (45-64 years old) are the middle aged people and those older than 65 years are regarded as old age by many authorities. These age groups can also subdivided into further smaller groups, for example, the 0-14 years old may be subdivided into infants, under-five, school age and so on according to the purpose of the analysis.

Studies about health seeking behavior usually report the rate of illness in either the past two weeks, past month or the past two months and rarely more distant in time. In this study, several rates of illness are reported. This was done purposefully during the study design by asking individuals about their last illness and not whether they were ill in the past two weeks or so. This has the advantage of comparability with different other studies that have adopted one time period as in the Iraq Living Condition and Iraq Household Socioeconomic Surveys (UNDP *et al.* 2005; World Bank *et al.* 2007). It also has potential shortcomings that will be discussed further in later in this chapter.

The answer to first research questions listed above, the overall reported illness in the past two weeks was 7.1% while the rates in the past month was slightly more than double (16.6%). These results are close but higher to the figures reported by both Iraq Living Condition and Iraq Household Socioeconomic Surveys (UNDP *et al.* 2005; World Bank *et al.* 2007). The former survey only reported rates of illness for the past two weeks and the rate for Erbil Governorate was 3.4%. Although the result from this study is almost double of that figure but it is still within the range provided by the report which was between the lowest of 2.4% in Salahaddin and the highest of 9.5% in Sulaimaniya. Still there are several possible reasons for this higher reported overall rate of illness in the past two weeks. One reason could be due the different target sample populations. The figures reported by Living Condition Survey are for Erbil governorate and not Erbil city as they included both rural and urban populations. The rate of illness in urban is usually higher than average as have been reported by the same survey and this will water down the results. On the other hand, they have also excluded the under five children who usually have a higher rate of illness compared to the general population and this will further reduce the rate. Another less convincing factor could be due to different times. Iraq Living Condition Survey was conducted 7 years prior to this study.

The other report, Iraq Household Socioeconomic Survey (IHSES), reported results only for the past month. The rate for Erbil Governorate was 14.5% which is closer to the result from this study (16.6%). Again this result is within the wide rate of illness reported from different governorates in Iraq ranging from 3.9% in Salahaddin to as high as 30.1% in again in Sulaimaniya. Differences in the rate of either time intervals between various demographic groups were more or less consistent with these two nation surveys.

Comparing these results to other countries, Steinhardt *et al* (2009) from her study in Afghanistan reported that about one fifth (19%) reported at least one episode of illness in the past month. This finding is consistent with the result from this study and within the range of rates from IHSES. In Iran, Pourreza *et al* (2011) reported even a higher percentage among the residents of the capital city of Iran, Tehran. Overall, 22.9% reported experiencing at least an episode of an illness in the previous month. Another study that had a similar sample size but different population was conducted by Yanagisawa *et al* (2004) that compared the health seeking behavior between different socioeconomic groups in Cambodia. They reported that overall, 43.8% experienced an episode of illness in the previous month. The previous two studies are very close to the results from this study but the one from Cambodia is very unusually high but the authors do not mention any reason. Another high illness rate in the past 15 days was reported in Bangladesh which was ranging from 12-17% in different socioeconomic groups.

Comparing results from this study with the above mentioned survey reports from Iraq (UNDP *et al.* 2005; World Bank *et al.* 2007), the largest difference was in the proportion of those who did seek some sort of external help. The Living Condition reported that only 14% from Erbil city did so with a wide range of as low as 5% in Thiqar and as high as 25% in Kirkuk while the figures from ISHES was 37.8%. These figures are much below what has been report by this study (90.7%). This wide gap between these results could be due to several reasons. First, even the figures between the nationally representative surveys are quite apart and this increasing trend from 14% to 37.8% between 2004 and 2007 are most probably due to improved economic situation of the population in general.

To give a rough idea about this improvement, before 2003, the average monthly salary of a civil servant was about 200 Old Iraqi Dinar equivalent to about 30 USD and in the recent years the average salary has increase to more than 500 USD. Also the daily wage of an unskilled manual worker has increased from 3 USD to more than 30 USD in between the two periods. This unprecedented at least ten times increase in income and potentially purchasing power most probably will affect all areas of life including health seeking behavior because financial reason has been reported by many authors as a major obstacle for seeking appropriate professional health care (Yanagisawa *et al.* 2004; Moran 2006; Hosseinpoor *et al.* 2007; MacNaughton 2008b; Shaikh *et al.* 2008; Steinhardt *et al.* 2009; Ruhul *et al.* 2010).

This study was done 7 years after Living Condition and 4 years after IHSES surveys and the economic situation of people has improved even further and thus further increase in the proportion of those who did seek some sort of external medical help. Still, this reason cannot account for the very wide difference between the two proportions.

Another reason could be due to the nature of the studies: this study was only about one relatively narrow field which is health seeking behavior but the other two surveys had a very extensive set of questions that took hours to complete in comparison to an average of 10 minutes for this study. These design issues can have multiple effects: when people are only asked for ten minutes about one issue which is their last illness they are more likely to focus and remember in comparison to the situation where the respondent becomes tired after hours of questioning in the context of very diverse questions about all areas of life. Another possible reason could be due to the fact than the previously mentioned reports asked about any illness in the past two weeks or month but this study asked about the last illness the patient had. This may also be partially responsible for the lower proportion of seeking help as some of the individuals may still have been in the process of making decision and the event may not have been over yet.

Findings from studies conducted in other countries are more comparable to this study that the previously mentioned surveys in Iraq. Steinhardt *et al* (2009) from her Afghanistan study reported almost the same result. The rate among seeking health care among those above five years old was found to be 90.8% ranging between 87.8%

among the most poor to 94.2% among the least poor. In a another recent study from Tehran, Iran, report a very close figure: 81.0% of those who were ill resorted to a qualified healthcare provider while 11.1% used self-medication and a further 7.9% just decided to just wait (Pourreza *et al.* 2011). Other similar findings were reported by Ahmed *et al* (2000) in Bangladesh where a proportion 74.7% to 84.7% among different socioeconomic groups reported seeking care for their last illness in the past 15 days.

On the other hand, Peng *et al* (2010) studied the factors that influence the health seeking behavior among migrant workers in the capital city of China, Beijing. This study was from urban area but with a different study population of mostly young workers of both sexes and they found that only 4.8% did consult a healthcare provider in the past two week. This constituted only about one third (36.4%) of those who were become ill and another third (33.3%) resorted to self-treatment while the last third (30.3%) took no measures and waited passively. The large difference between this study and that of China is mainly due to the very different study populations. This study was among the general population from all age groups while the population of the study from China was the young workers who are usually fit but another reason quoted by the researchers was financial as some did not have insurance.

With regard to the choice of provider, this study reported that overall, a proportion close to half (44.8%) resorted to private doctor clinic as their initial response to their illness. Other providers included: 21.8%, 17.4%, 9.4% and 6.5% for nurse clinic, emergency department, PHCCs and public HCs respectively. These figures agree partially with the corresponding figures reported by Living Condition Survey for Erbil governorate which were 50.2%, 8%, 16%, 24.5% (collectively for HCs) respectively. They had the extra option of traditional healers which was use by about 2% of the population. From the findings of this study, no one used the services of traditional healer as the first therapeutics choice but they did so if they did not get benefit and the next step service provider. IHSES reported their results by a different kind of grouping of health service provider which makes direct comparison a difficult task. The figures for Erbil were: 31% for nurse clinics, 28% for physicians, 27.7% for public hospitals and HCs. The figures reported by Living Condition Survey are more consistent with the finding from this study but few points need special attention. The

rate of use of both private doctor and public hospital (usually emergency department) are very close but the real difference is in the figures related to both nurse clinics and HCs. The researcher thinks that the findings from this study are more reasonable with regard to the use of nurse clinics which is about one fifth (21.8%).

The reason for possible underestimating of the use rate of nurse clinics could be attributed to social desirability bias. Both surveys used direct face to face method of data collection and some people may underreport their visit to nurse because it might be interpreted as less prestigious. This study tried to avoid this source of bias by leaving the questionnaire with the individuals and then return to them in the next day. Thus they had the privacy needed for filling the questionnaire alone as has been mentioned in the methods section.

The results from IHSES completely contradict both findings from this study and the Living Condition Survey with regard to the choice of service provider although the grouping of the service providers is less comparable. Contrary to Living Condition, IHSES's estimate for the rate of use of nurse clinics is very high (31% vs. 8%). On the other hand, the rate of private doctor clinic use is much lower (almost half) that have been report by the other two sources. It is not easy explain the reasons behind these strange numbers but one possible reason could be grouping, recoding and labeling of the collected data because this valuable report contains other discrepancies as well.

From findings of all the three sources, one phenomenon deserves special attention. Even with lowest estimate of 8%, the rate of using the services of nurses is much higher in Erbil compared to the rest of Iraq and even other cities in Kurdistan region. This phenomenon of private nurse clinics is very common in Erbil and in each neighborhood at least several such clinics exist. They are in the form of an ordinary shop that provides nursing as well as curative service for a wide variety of simple and moderately severe conditions. Their advantage includes their flex hours of operation which starts in the afternoon and may extend into midnight. Many of these clinics are part of the residents of the nurses and medical assistant and they are happy to help if you knock at their door at 2:00 am. They also serve as a close and convenient pharmacy. This phenomenon started gradually during the extremely difficult financial times of the early 1990s in Erbil city as low-prices alternative to private doctor

clinics. During the time between 1991 and 1996, the purchasing power of people was extremely low due to double embargo on Kurdistan region by both the international community and the central Iraqi government in additions to the miseries of internal civil war which lasted for several years during the same period. On average, the monthly salary of a civil servant was about 200 Old Iraq Dinar which was worth of less than 2 USD most of the embargo year.

This study shows that the services provided by nurse clinics are quite popular and it is not only used by people at the lower scales of both socioeconomic and educations levels but even a relatively large proportion with good education and high socioeconomic levels make use of their services. The rate of use among the very high and high socioeconomic quintiles (15.6% and 24.7% respectively) is not much different and may be even higher than those of the low and very low socioeconomic quintiles (26.2% and 20.1% respectively). These results are consistent with findings from a study done in UK where many consumers preferred a nurse than a medical doctor (Horrocks *et al.* 2002). Some aspect from these findings are consistent with results from the study in Bangladesh by Ahmed *et al* (2000) who reported that between 24.1% to 48.7% sought care from what they call: para-professionals that includes trained village doctors, medical assistants, community health workers of ICDDR,B, BRAC and others who have some formal training in allopathic medicine. It seems that this situation bares some similarities to the very common phenomenon of nurse clinics in Erbil city.

The convenience of nurse clinics is also manifested in other ways. As has been shown in Table 3-8, almost half (46.3%) chose the nurse clinic based on proximity and a third (33.3%) based on cost. The highly accessibility of this "among the people" service is also evident from Table 3-11 in which we see that the majority (60.4%) of patients actually walk on foot into the service.

Although the rate of using private doctor clinics did differ between different socioeconomic quintiles, the differences between the use of the lowest and highest quintiles was not striking as might be expected. Even the lowest socioeconomic quintile's rate of private doctor clinic was as high as 39.6% which is not much far away from the highest quintiles of 57.1%. These findings are supported by similar results from the Living Condition Survey (45.2% and 56.6% respectively). The reason

behind this unexpected health seeking behavior could be due to the general perception among people that the best available therapeutic choice are the private doctors clinics and even if they think that the service is expensive, they are ready to allocate necessary resources when they think that their health condition is serious.

These findings are different from many of the studies that have been done in poor countries that show a large difference between the health seeking behavior among different socioeconomic groups especially for the use medical doctor clinics (Ahmed *et al.* 2000; Yanagisawa *et al.* 2004; Shaikh *et al.* 2008; Steinhardt *et al.* 2009). The main reason is due to the relatively higher living standards in Erbil city compared to these countries, which may resemble the situation here about 15-18 years ago when Kurdistan region was under double embargo from the international community and the central Iraqi government.

With regard to gender difference in service utilization, it is widely quoted that the majority of the visitors of PHCCs are women. This study shows an almost identical rate of use among both genders. This could be due to the fact that this study was only about the therapeutic use of PHCCs and did not include the preventive services which are one of the best functioning units in a health center that are used more commonly by females be it maternal and child care or even immunization of children in which case the caregiver is usually the mother.

The relation between a service provider in general and patient has many dimensions and one of the driving forces for the continuity of and progress of this relationship is trust. The importance of trust cannot be overemphasized because the patient is literally putting his life in the hand of his doctor. When analyzing the reason why some people did not seek appropriate medical care, a more than third expressed their distrust (15.5% and 19.7% for "trust slightly" and do not trust" respectively) added to it a 40.8% equivocal vote. Only less than a quarter expressed their above average trust in their medical doctor. This growing distrust can also be felt from the comments written by the respondents as many were accusing the medical doctors the becoming businessmen trading in people. This is an alarming issue and relevant authorities like physician associations should study this problem in greater detail and work with other bodies to put a solution for this growing issue.

Although everybody admits that the medical doctors are more knowledgeable and competent compared to nurses and medical assistants, still we see that the response rate is the very high (44.8%) among those who sought medical care from a nurse clinic. This could be due to several reasons. Usually people consult a nurse clinic for mild to moderate illnesses that are more likely to resolve spontaneously in a short time. On the other hand, many people reserve going to a private doctor clinic to only severe cases as perceive by the patient or the decision maker. The other reason could be due to placebo effect because the majority of people have a favorable view and are more at ease with visiting a nurse compared to a medical doctor.

Although this result may be some surprising, but many other researchers have reported the outcome from may be superior in some ways. Horrocks *et al* (2002) have conducted a systemic review of whether nurse practitioners working in primary care can provide equivalent care to doctors that included 11 randomized controlled trials and 23 observational studies. They have reported that in general patients were more satisfied with care provided by a nurse practitioner compared to a medical doctor. Additionally, they found that there was no significant difference in patient health outcomes between the two groups and that that quality of care is better for nurse practitioners than medical doctors.

The highest reported reason behind choosing a service provider was the health care seeker's view on appropriateness of the service. This is a good sign because it indicated that most people have and do make use of these choices and are not obliged to use low quality and low price or free services. This seems to be true for most people but still a significant minority remains that may afford caring for day to day illnesses but may become impoverished by an illness in one of the family members which is incurable and may result in bankruptcy of the family.

With regard to choosing a service based on the perceived appropriateness to the patient's specific health issues, the largest percentage is for doctor private clinics (68.6%). This means that more than two-thirds of the respondents thought that the services provided by the private doctor clinics are the best available choice. As has been mentioned earlier, almost all people think that the best choice of care is a private clinic doctor as the initial step. On the other hand, a relatively high percentage (17.8%) of patient's report appropriate use as the reason for choosing the emergency

department. This makes sense because emergency department provides services that are unique and cannot be provided by other service providers including 24/7 availability of free of charge services, capability of immediate response, facility for immediate surgical operations and much more.

On the other hand, the very low rate of reported use of PHCCs based on appropriate use if a good indicator that the quality of services in these facilities are much below what the patients expect and only uses them in case of mild illnesses or a source of free low quality health care.

Ideally cost should not be a concern when seeking proper medical care but it seems that we are still far away from this ideal situation. Cost still retains a relatively big role in the decision to seek appropriate care. About over a fifth (21.3%) reported that the cost factor was the single reason for choosing their service provider. This proportion have to be zero as mentioned above and proper mechanism of payment have to be considered as soon as possible by health policy makers because this proportion is likely to increase due to the very rapid growth of the private sector in terms of quantity and quality and the sluggish changes in the public sector. To quote only few figures, only two decades ago, there was only one private hospital in Erbil city but now the number has jumped to more than 40 (this number includes private hospital that are under construction also).

The other reason that deserves some attention is the "recommended by someone" reason for choosing service provider. Both "recommended by someone" and fame of the service provider, which is another form of recommendation, account for more than 20% of the reasons behind selecting the service provider. Many anecdotes tell of people who may consult the wrong specialty just because they have been recommended by someone and they have got benefit from their treatment. This implies that people have low education when comes on how to choose the appropriate service provider and this issue have to be a concern by health policy makers and try to find an appropriate solution. The trend for family medicine in the country within the last few years bears some promise.

About the next choice in the process of health care seeking decision making, it is quite understandable that the majority of patients who do not respond to the initial health

care seeking attempt will make another try. It is also logical that they will try the best available choice. As mentioned earlier, people regard the private clinics as the gold standard and that is why we see that the highest rate for second shop is private doctor clinics. This was on the positive side. But the data show highlights a very negative phenomenon among our patients which is "doctor shopping". Only a small minority (7.7%) went back to the same provider when their illness did not show improvement and the majority chose to try "another" private clinic. The tendency of patients to shop around for medical care is serious issue that is only poorly understood. There is some anecdotal information about this potential harmful health seeking behavior but no research has been published on the subject. This phenomenon deserves more study in our community because it causes a waste of resources with potential delayed diagnosis and right treatment. Most of the time, the result of doctor shopping is to do all the lab investigations again and start a new regimen of therapy that in most case based on best guess.

An interesting finding from this study is about the use of traditional alternative medicine. No patients reported using traditional medicine for as the first therapeutic choice but a relatively significant minority (2.6%) did so for their second choice. With the advance in medicine, pharmaceuticals and medical technology, still traditional medicine coexists alongside the modern allopathic medicine and it is especially popular in our community for certain conditions like fracture and mental illnesses. This area needs more study to find out about the real reasons why people resort to an illiterate person rather than a specialist who may have advance degrees and long year of experience.

These findings do not correspond with most of the literature about the use of alternative medicine in general in both developed and developing countries. Al-Rowais *et al* (2010) reported that a very high (42%) of their study participants consulted traditional healers sometime before, and 23.9% had done so in the previous 12 months but they do not mentioned if this was the first or the second choice. They also report different reasons for such a high proportion among them: distrust of physician diagnosis, failure of medical treatment, perceived success of alternative medicine practitioners, preference of natural materials and prolonged waiting for physician's appointment. Another study (Ahmed *et al.* 2000) also has reported

relatively high rate (11.05-16.2%) of use in Bangladesh but Steinhardt *et al* (2009) reported relatively low (less than 2%) use in Afghanistan. On the other hand, the rate reported use of traditional medicine was very high in Cambodia. They reported that 63.6% and 71.7% had tried traditional remedies for their last illness in both very poor and better-off people respectively(Yanagisawa *et al.* 2004).

Even in the developed countries, resurgence in the practice of alternative medicine has been reported by many surveys. Previous studies showed a similar finding as the consultation of alternative medicine practitioners in the United States has increased by about 47% between 1990 and 1997 (Eisenberg *et al.* 1998). A survey by the National Center for Complementary and Alternative Medicine in 2004, which is part of the National Institutes of Health in the United States, found that 62.1% of adults in the USA had used some form of alternative medicine in the past 12 months and 75% at least did so once in their lifetime (Barnes *et al.* 2008).

It seems that the use alternative medicine is relatively high in both developed and very poor countries (like USA and Cambodia) and relatively low in transitional communities (like Iraq, Afghanistan and Bangladesh). The reason for the high prevalence of use seems to be different in developed and developing countries. In case of poor countries this could be the only choice due to unavailability of modern allopathic medicine altogether or lack of access due to geographical or financial obstacle. On the other hand, the increasing use of alternative medicine in developed countries is a completely different story. One of the main reasons is the pattern of diseases. Chronic diseases are most common in developed countries and people get bored with continuous treatment without showing much improvement that they want to try something different in hope that they results be as advertised. The low rate of traditional medicine in transitional communities could be the wider availability and relatively easier access to different professional medical providers in addition to the issue of disease pattern.

Another issue about the second choice is seeking medical care outside the country. Another significant minority (2.4%) went abroad as their next choice of choosing a service provider. This can be viewed as a positive and a negative phenomenon at the same time. It has a positive element because now people have the opportunity to seek health care outside the country which was not possible few years ago due to logistics

as well as financial obstacles. At the same time, when people go abroad, this probably means that these services are not available inside the region and more work have to be done in this regard.

This study showed that only few variables could possibly predict the health seeking behavior in general and also the choice of a specific provider. In case of seeking versus not seeking, only the gender and severity variables were able to show a significant logistic relationship with the outcome. These results from the regression analysis also correspond to the previous chi-square and cross tabulation result earlier among these variables.

Interestingly no variable showed predicting power in case of the choosing private doctor clinics and this corresponds to previous results that show almost a similar proportion from different socioeconomic, gender, educational groups make use of this service. These results are not consistent with many other studies that have reported more predicting power of the independent variables. This may be related to the previously mentioned pattern of use between developed, poor countries and transitional communities.

The reason behind difference in the perceived adequacy of consultation time of different service providers can have more than dimension. This apparent paradox is actually depends on the people's expectation from these services providers which is the core of the definition of satisfaction (Ware *et al.* 1977; Roghmann *et al.* 1979; Reifel *et al.* 1997). People naturally expect more from private doctor clinics because they pay more and also compared to nurse clinics and PHCCs which is almost free (only a nominal fee). One caveat has to be kept in mind when dealing with consultation time as reported by the patient which was the case in this study and not recorded objectively. Many studies confirm that these reported times at not very accurate and can be influenced by many subjective and objective factors (Ogden *et al.* 2004; Lussier *et al.* 2007).

On the other hand, people's expectation may not be only related to payment because even among free public health services people have different expectations. For examples, both PHCCs and emergency department are providing their services free of charge but people's expectation of the mean adequate time is more than double for the

emergency department compared PHCCs. The reason may be related to the fact that people use these services for different needs as discussed before. Usually people use the emergency department for perceived severe or possibly serious illness but use the PHCCs as a source of low cost alternative for simple and mild conditions. So is makes sense that people expect more when they are seriously ill than a mild condition (WHO 2000).

The relatively very favorable view of the nurse clinics in this study even compared to private doctors clinics may come as a surprise but similar findings have been reported even in developed countries. These findings are also consistent with reported high use rate of nurse clinics as mentioned earlier. Horrocks *et al.* (2002) who reported that patients were more satisfied with the services offered by nurse practitioners compared to medical doctors. No study about the comparison of services provided by nurses and medical doctors were found that have been conducted in Iraq or the neghbouring countries but a study by Peschke *et al.* 2009 from Duhok city about the reported a higher satisfaction with family medicine approach which has been recently adopted in comparison to the traditional PHCCs which reported the lowest rating. The point of relevance of the study mentioned above and this study is that nurse clinics may share some elements of family medicine (Peschke *et al.* 2009).

Many studies in the nearby countries reported relatively high rate of satisfaction with the services provided by primary health centers (Al-Qatari *et al.* 1999; Al-Doghaither *et al.* 2000; Saeed *et al.* 2001; Margolis *et al.* 2003; Mahfouz *et al.* 2004; Al-Eisa *et al.* 2005). The reason behind the difference from these studies and the low rate reported by this study is the fact that the government in these countries allocate a large amount of resources to these health facilities and they consider it the mainstay of their health system while in Kurdistan region, PHCCs are thought of a costly and non-efficient heritage from the past that they cannot touch due to possible negative reaction from people and use for political reasons.

Like any study, this study also had some shortcomings. Due to different rates of illnesses at different times of the year, this study might not have captured the picture perfectly because data for this study was collected for six months due to time restriction on academic research. The researcher tried to mitigate this bias by asking people about their last illness and not only the illness experienced within the past two

weeks or month. This has partially solved this potential bias but the way people remember recent and old diseases are not the same. The far back in time, the more likely they will remember only more severe illnesses because nobody can remember all the trivial health problems in the past year. Extending the time period for more than the one month had another advantage: the results will be more flexible and comparable to other studies.

This study has depended on self-perceived reporting of morbidity and surely this is not the best way because it is influenced by many subjective issues. Different people may have different definitions and perceptions of health and illness as has been discussed on detail in literature review about the definition of health. Additionally, recall bias plays a noticeable role in such studies as people remember details about their last illness depending on several factors. Many researchers have reported that certain population groups in some communities may under or over report their illness (Ahmed *et al.* 2000; Shaikh *et al.* 2005; Manzoor *et al.* 2009). These possible limitations were tackled by relatively large sample size.

The researcher tried to avoid social desirability bias (in which the patient hides socially undesirable behaviors) and respondent biases (when the respondents tries to please the interviewer by his/her answer when the interviewer insists on a specific issue) by avoiding direct face to face interview. This resulted in more work for the researcher because in many case, the researcher had to visit the same household for several times. In the initial visit, the idea behind the study was explained and how to fill the questionnaire. Some people had additional questions which was explained and given further time to fill it and the researcher had to come back in the next day to collect the filled questionnaire. At this time, a quick review was done to insure that the questionnaire was filled appropriately, if not, the researcher would return the questionnaire to the household and collect it in the next visit.

On the other hand, this study also may have several strength points. One of the major strength points of this study is the use of a community-based household design which insures that all members of the community are at equal chance to be selected into the sample in contrast to facility-based convenient sampling techniques that are common in our region due to it is ease of use.

The innovative method of using satellite image and residential patterns for sampling is another major strength of this study that ensured a high degree of representativeness as has been manifested by the similarity of the demographic characteristics of the sample population to the target population which is the population of Erbil city in this case. Another major strength of this study was the use of PCA in determining the weight for socioeconomic variables and produced a scale that can be easily divided into comparable quintiles.

Special care was taken in the process of the questionnaire design to make is as easily and as readable as possible. The wording of the questions was also a major area of special attention. The questions were put in a logical order than can keep the respondent on track and engaged during the short 10 minute of less required to fill the questionnaire.

CHAPTER 5
CONCLUSIONS AND RECOMMENDATIONS

5.1. Conclusions

Everyday thousands of people become ill and may seek necessary help for their health problems. This study was an attempt to answer some of the questions related to the health seeking behavior of the general population in Erbil city. These questions include: who is getting ill? What do they do in response to their illness? What are the most common symptoms they present with? Which service providers most likely they will use and why? What are the possible outcomes of their illness? What did they do if not getting benefit from the initial health seeking attempt.

The findings showed that (1) the rate of illness was about 7.1% in the past two weeks and 16.6% in the past month. (2) The commonest symptoms in order of frequency were pain in different parts of the body, enlarged tonsil, cough, shortness of breath, fever, diarrhea, vomiting, urinary problems and others. (3) The highest reported frequency for the site of pain was generalized body ache, abdominal pain, headache, upper respiratory related to tonsils, flanks, back, limbs, teeth, joints, chest, eye and others. (4) A minority chose to wait and do nothing and a similar proportion decided to try self-treatment but the vast majority did seek external medical help. (5) Nearly half of them consulted a private doctor clinic and about a fifth sought the help of a nurse, other less frequently used services were emergency department, PHCCs and lastly public health centers. (6) The highest reported reason for choosing a service provider was perceived appropriateness of the service followed by cost, geographical distance, fame, recommendation by someone, being the only available choice and acquaintance with the provider. (7) About a third got benefit from the treatment but a fifth did not and the rest reported partial response. Among those who did not improve, the majority chose to do nothing, about a third chose to consult another private doctor clinic, a significant minority chose to try traditional medicine and a similar proportion resorted to medical care outside the country.

5.2. Recommendations

Health service research plays a crucial role to improve the quality of health care and make a better health system but this will not be very fruitful with unfunded individual efforts but it should be by back by relevant institutions. Additionally, research questions about health services are changing constantly that is why these surveys need to be conducted at regular periods in time. Like most of the developed world, we need in Kurdistan region bodies that are specialized in this issue. So the researcher makes the following recommendations:

- Established an agency similar to Agency for Healthcare Research and Quality in Kurdistan region that can fund research and follow up annual national surveys.
- Conducting national annual surveys similar to BRFSS, NHANES and other major national surveys under the above proposed body.
- Adopting family medicine system.
- Implementing health insurance system that is suitable to the regions circumstances.
- Incorporating patient satisfaction surveys to the routine use in both public and private health care facilities.

Conducting further research in the following areas:

- Trust in healthcare providers and how to improve it.
- Using more qualitative or combine methods for research on health seeking behavior.
- Health seeking behavior of specific sub-populations like elderly, those with chronic diseases, children illness and others vulnerable groups.

REFERENCES

Abdulla MN (2002). *[Influence of subjective and objective factors in indicating of consumers situation for choosing hospital]*. MSc thesis. Salahaddin University.

Abu-Rumman K, Sabra NA, Bakri F, Seita A, Bassili A (2008). *Prevalence of tuberculosis suspects and their healthcare-seeking behavior in urban and rural Jordan*. The American Journal of Tropical Medicine and Hygiene; 79(4): 545.

Aday LA, Cornelius LJ (2006). *Designing and conducting health surveys*. San Francisco: Jossey-Bass.

Ahmed SM (2005). *Exploring health-seeking behaviour of disadvantaged populations in rural Bangladesh*. PhD dissertation. Karolinska Institute; Sweden.

Ahmed SM, Adams AM, Chowdhury M, Bhuiya A (2000). *Gender, socioeconomic development and health-seeking behaviour in Bangladesh*. Social Science & Medicine; 51(3): 361-71.

AHRQ (2011). Consumer assessment of health plans study (CAHPS). Retrieved Oct 18, 2011, from www.cahps.ahrq.gov.

Ajzen I (1985). *From intentions to actions: a theory of planned behavior*. Journal of Personality and Social Psychology; 49(3): 843–51.

Al-Doghaither A, Saeed A (2000). *Consumers' satisfaction with primary health services in the city of Jeddah, Saudi Arabia*. Saudi medical journal; 21(5): 447.

Al-Eisa I, Al-Mutar R, Al-Turki A (2005). *Patients' satisfaction with primary health care services at capital health region, Kuwait*. Middle East Journal Family Medicine; 3: 10-6.

Al-Haydary AA (1985). *[Urban renewal for Erbil Citadel: Socio-economic and physical study]*. Mosul: Mosul University Press.

Al-Haydary AA (2002). *[Social and demographic effects on urban development in Iraq: Erbil Governorate as an example]*. PhD dissertation. Tunisia University; Tunis.

Al-Mudaris SB (2003). *[The residential pattern in Erbil City]*. MSc thesis. Salahadin University; Iraq.

Al-Qatari G, Haran D (1999). *Determinants of users' satisfaction with primary health care settings and services in Saudi Arabia*. International Journal for Quality in Health Care; 11(6): 523.

Al-Rowais N, Al-Faris E, Mohammad AG, Al-Rukban M, Abdulghani HM (2010). *Traditional healers in Riyadh region: reasons and health problems for seeking their advice. A household survey*. The Journal of Alternative and Complementary Medicine; 16(2): 199-204.

Aletras VH, Papadopoulos EA, Niakas DA (2006). *Development and preliminary validation of a Greek-language outpatient satisfaction questionnaire with principal components and multi-trait analyses*. BMC Health Services Research; 6(1): 66.

Ali M, Rasool S, Park J-K, Saeed S, Ochiai R, Nizami Q, Acosta C, Bhutta Z (2004). *Use of satellite imagery in constructing a household GIS database for health studies in Karachi, Pakistan*. International Journal of Health Geographics; 3(1): 20.

Alwan A (2004). *Health in Iraq: The current situation, our vision for the future and areas of work*. Baghdad: Al-Adeeb Press.

American Heritage Dictionary of the English Language (2000). 4th ed. Boston, MA, Houghton Mifflin.

Arbil (2012). Encyclopædia Britannica Online. Retrieved 13 January, 2012, from http://www.britannica.com/EBchecked/topic/293739/Arbil.

Ateşkan Ü, Mehmet Refik M, Doruk H, Kutlu M (2000). *Urinary incontinence among the elderly people of Turkey: Prevalence, clinical types and health-care seeking*. Turkish Journal of Geriatrics; 3(2): 45-50.

Awofeso N (2005). *Re-defining 'Health'*. Bulletin of the World Health Organization; 83(802).

Aziz MA-W (1990). *[Urban evolution in Erbil City: Field study in Erbil City]*. MSc thesis. Baghdad University; Iraq.

Bailey EJ (1987). *Sociocultural factors and health care-seeking behavior among black Americans*. Journal of the National Medical Association; 79(4): 389.

Barnes PM, Bloom B, Nahin RL, NCHS (2008). Complementary and alternative medicine use among adults and children: United States, 2007, US Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics.

Beck AH (2004). *The Flexner report and the standardization of American medical education*. Journal of American of Public Health; 291(17): 2139.

Becker MH, Haefner DP, Kasl SV, Kirscht JP, Maiman LA, Rosenstock IM (1977). *Selected psychosocial models and correlates of individual health-related behaviors*. Medical Care; 15(5): 27-46.

Berg NM, Rustad A, Kjelsberg E, Almvik R, Bjorngaard J (2011). *Health care help seeking behaviour among prisoners in Norway*. BMC Health Services Research; 11(1): 301.

Beşiroğlu L, Çilli AS, Aşkin R (2004). *The predictors of health care seeking behavior in obsessive-compulsive disorder*. Comprehensive Psychiatry; 45(2): 99-108.

Birch M, Al-Naseri H, Cook J, Piachaud J, Salvage J, Sharma S (2008). *Rehabilitation under fire: health care in Iraq 2003-2007*. London: Medact.

Broussard BA, Valway SE, Kaufman S, Beaver S, Gohdes D (1993). *Clinical hypertension and its interaction with diabetes among American Indians and Alaska Natives: estimated rates from ambulatory care data*. Diabetes Care; 16(1): 292-6.

Burnham G, Hoe C, Hung YW, Ferati A, Dyer A, Al-Hilfi T, Aboud R, Hasoon T (2011). *Perceptions and utilization of primary health care services in Iraq: findings from a national household survey*. BMC International Health and Human Rights; 11(1): 15.

Centers for Medicare and Medicaid Services (2011). Medicare current beneficiary survey (MCBS). Retrieved Oct 22, 2011, from www.cms.gov/mcbs/.

Chakmakchi PS (1996). *[The role of social factors in the preparation of master plans: Application to the city of Erbil]*. MSc thesis. Salahaddin University; Iraq.

Charles JO, Udonwa NE, Ikoh MU, Ikpeme BI (2008). *The role of mothers in household health-seeking behavior and decision-making in childhood febrile illness in Okurikangikot Effiong Otop Community, Cross River State, Nigeria*. Health Care for Women International; 29(8): 906-25.

Chawishli HR (1985). *[Historical heritage of Erbil]*. Mosul: Mosul University Press.

Cockerham WC, Ritchey FJ (1997). *Dictionary of medical sociology*. New York: Greenwood Pub Group.

Cox M, Irby DM, Cooke M, Sullivan W, Ludmerer KM (2006). *American medical education 100 years after the Flexner report*. New England Journal of Medicine; 355(13): 1339-44.

Dargalayi Y (2002). *[History of Erbil City]*. Sulaymaniya: Sardam.

Davidson SK, Schattner PL (2003). *Doctors' health-seeking behaviour: a questionnaire survey*. Medical Journal of Australia; 179(6): 302-5.

Donabedian A, Bashshur R (2003). *An introduction to quality assurance in health care*. New York: Oxford University Press, USA.

Dorian A (2002). *Health-seeking behavior in Nagorno Karabagh: Determinants for utilization of curative and preventive government child health care services*. PhD dissertation. Johns Hopkins University; USA.

Eisenberg DM, Davis RB, Ettner SL, Appel S, Wilkey S, Van Rompay M, Kessler RC (1998). *Trends in alternative medicine use in the United States, 1990-1997*. Journal of the American Medical Association; 280(18): 1569-75.

Erbil Governorate GIS Center (2010). Erbil satellite image. Retrieved 2011, from http://www.hawlergov.org/ku/maps.php.

European Commission (2011). *The state of men's health in Europe*. Brussels: European Union.

Evans GA (2004). *Final summary report Iraq health systems strengthening project*. Bethesda, MD: Abt Associates Inc.

Fenner F, Henderson DA, Arita I, Jezek Z, Ladnyi ID (1988). *Smallpox and its eradication*. Geneva: World Health Organization

Filmer D, Pritchett LH (2001). *Estimating wealth effects without expenditure data - or tears: An application to educational enrollments in states of India*. Demography; 38(1): 115-32.

Gabe J, Bury M, Elston MA (2004). *Key concepts in medical sociology*. London: Sage Publications Ltd.

Gilroy K (2007). *Patterns of care seeking and treatment for sick children in Bougouni District, Mali*. PhD dissertation. Johns Hopkins University; USA.

Glanz K, Rimer BK, Viswanath K (2008). *Health behavior and health education: theory, research, and practice*. San Francisco: Jossey-Bass.

Gochman DS (1997). *Handbook of health behavior research*. New York: Springer.

Godlee F (2011). *What is health?* British Medical Journal; 343.

Grundy J, Annear P (2010). *Health-seeking behaviour studies: a literature review of study design and methods with a focus on Cambodia*. Melbourne: The Nossal Institute for Global Health.

Hausmann-Muela S, Ribera JM, Nyamongo I (2003). *Health-seeking behavior and the health system response*. London: London School for Hygiene and Tropical Medicine.

Heggenhougen HK, Ed. (2008). *International encyclopedia of public health*. New York: Elsevier Inc.

Horrocks S, Anderson E, Salisbury C (2002). *Systematic review of whether nurse practitioners working in primary care can provide equivalent care to doctors*. British Medical Journal; 324(7341): 819-23.

Hosseinpoor AR, Naghavi M, Alavian SM, Speybroeck N, Jamshidi H, Vega J (2007). *Determinants of seeking needed outpatient care in Iran: results from a National Health Services Utilization Survey*. Archives of Iranian Medicine; 10(4): 439-45.

Howe LD, Galobardes B, Matijasevich A, Gordon D, Johnston D, Onwujekwe O, Patel R, Webb EA, Lawlor DA, Hargreaves JR (2012). *Measuring socio-economic position for epidemiological studies in low-and middle-income countries: a methods of measurement in epidemiology paper*. International Journal of Epidemiology.

Huber M, Knottnerus JA, Green L, Horst Htvd, Jadad AR, Kromhout D, Leonard B, Lorig K, Loureiro MI, Meer JWMvd, Schnabel P, Smith R, Weel Cv, Smid H (2011). *How should we define health?* British Medical Journal; 343.

Ibrahim A-MG (1994). *[The role of social factors on population growth in Erbil City between 1957 and 1987]*. Salahaddin University.

ICDDRB (2011). International Centre for Diarrhoeal Disease Research. Retrieved October 28, 2011, from www.icddrb.org.

Imam AM (2002). *Testing the relationship between staff satisfaction and patient satisfaction in the Palestinian health care service as a way of exploring the management culture*.

Institute of Medicine (2001). *Health and behavior: The interplay of biological, behavioral, and societal influences*. Washington DC: National Academies Press.

Ismail ZB (1986). *[The history of Erbil]*. Erbil.

Ismail ZB, Arif H, Khattat SY, Zawrar M, Sharif TI, Rashwany H (1986). *[Erbil between past and future]*. Mosul: Mosul University Press.

Jadad AR, Grady L (2008). *How should health be defined?* British Medical Journal; 337.

Jekel JF, Katz DL, Elmore JG, Wild DMG (2007). *Epidemiology, biostatistics, and preventive medicine*. Philadelphia: WB Saunders Co.

JHSPH (2011). ICDDR,B - Center for health and population research. Retrieved October 28, 2011, from http://www.jhsph.edu/gra/Partners/icddrb.html.

Kasl SV, Cobb S (1966a). *Health behavior, illness behavior, and sick-role behavior. II. Sick-role behavior*. Archives of Environmental Health; 12(4): 531.

Kasl SV, Cobb S (1966b). *Health behavior, illness behavior, and sick role behavior. I. Health and illness behavior*. Archives of Environmental Health; 12(2): 246.

Khoury S, Mawajdeh S (2004). *Performance of health providers in primary health care services in Jordan*. Eastern Mediterranean Health Journal; 10(3): 372-81.

Khraim FM, Scherer YK, Dorn JM, Carey MG (2009). *Predictors of decision delay to seeking health care among Jordanians with acute myocardial infarction*. Journal of Nursing Scholarship; 41(3): 260-7.

Kinnersley P, Stott N, Peters T, Harvey I, Hackett P (1996). *A comparison of methods for measuring patient satisfaction with consultations in primary care*. Family Practice; 13(1): 41.

Koenig MA, Jamil K, Streatfield PK, Saha T, Al-Sabir A, Arifeen SE, Hill K, Haque Y (2007). *Maternal health and care-seeking behavior in Bangladesh: Findings from a national survey*. International Family Planning Perspectives; 33(2): 75-82.

Krefis AC, Schwarz NG, Nkrumah B, Acquah S, Loag W, Sarpong N, Adu-Sarkodie Y, Ranft U, May J (2010). *Principal component analysis of socioeconomic factors and their association with malaria in children from the Ashanti Region, Ghana*. Malaria journal; 9(1): 201.

KRSO (2010). Demographic data of Erbil Governorate. Retrieved December 17, 2010, from www.krso.net.

Kumar N (2007). *Spatial sampling design for a demographic and health survey*. Population Research and Policy Review; 26(5-6): 581-99.

Lafta R (2007). *Utilization of health services in a sample of PHC centers in Baghdad*. Iraqi Journal of Community Medicine; 20(1): 1-8.

Lasserson DS, Chandratheva A, Giles MF, Mant D, Rothwell PM (2008). *Influence of general practice opening hours on delay in seeking medical attention after transient ischaemic attack (TIA) and minor stroke: prospective population based study*. British Medical Journal; 337.

Lionis CD, Sasarolis SM, Koutis AD, Antonakis NA, Benos A, Papavasiliou S, Fioretos M (1996). *Measuring the prevalence of diabetes mellitus in a Greek primary health care district*. Family Practice; 13(1): 18-21.

Liu X, Hawail MJ, Farag ME, Al-Zeyada M, Ali N, Laverentz M (2003). *Concept paper for the national health care quality improvement program in Iraq*. Bethesda, MD: Abt Associates Inc.

Liu X, Zandniapour L (2004). *A report on the development of a household survey instrument for the assessment of health need, utilization of and expenditure for health care*. Washington DC: Abt Associates Inc.

Ljung R, Peterson S, Hallqvist J, Heimerson I, Diderichsen F (2005). *Socioeconomic differences in the burden of disease in Sweden*. Bulletin of the World Health Organization; 83(2): 92-9.

Lohr KN, Steinwachs DM (2002). *Health services research: An evolving definition of the field.* Health Services Research; 37(1): 7-9.

Lowther SA, Curriero FC, Kalish BT, Shields TM, Monze M, Moss WJ (2009a). *Population immunity to measles virus and the effect of HIV-1 infection after a mass measles vaccination campaign in Lusaka, Zambia: a cross-sectional survey*. The Lancet; 373(9668): 1025-32.

Lowther SA, Curriero FC, Shields T, Ahmed S, Monze M, Moss WJ (2009b). *Feasibility of satellite image-based sampling for a health survey among urban townships of Lusaka, Zambia*. Tropical Medicine & International Health; 14(1): 70-8.

Lussier MT, Richard C (2007). *Time flies: Patients' perceptions of consultation length and actual duration*. Canadian Family Physician; 53(1): 46.

Maamari F (2008). *Case-finding tuberculosis patients: diagnostic and treatment delays and their determinants*. East Mediterranian Health Journal; 14(3): 531-45.

MacKian S (2003). *A review of health seeking behaviour: problems and prospects*. Manchester, UK: Health Systems Development. University of Manchester.

MacNaughton NS (2006). *Health-seeking behavior and health services use by Latino men in a rural Iowa community*. PhD dissertation. The University of Iowa; USA.

MacNaughton NS (2008a). *Health Disparities and Health-Seeking Behavior Among Latino Men*. Journal of Transcultural Nursing; 19(1): 83.

MacNaughton NS (2008b). *Health disparities and health-seeking behavior among Latino men: A review of the literature*. Journal of Transcultural Nursing; 19(1): 83-91.

Mahfouz A, Al-Sharif A, El-Gamal M, Kisha A (2004). *Primary health care services utilization and satisfaction among the elderly in Asir region, Saudi Arabia*. East Mediterranian Health Journal; 10(3): 365-71.

Malanyaon O (1995). *Health-seeking behavior of urban poor communities*. Philippine Institute for Development Studies.

Manzoor I, Hashmi N, Mukhtar F (2009). *Determinants and pattern of health care services utilisation in post graduate students*. Journal of Ayub Medical College, Abbottabad; 21(3).

MapInfo Corporation (2008). Mapinfo Professional Version 8.0, MapInfo Corporation.

Margolis SA, Al-Marzouqi S, Revel T, Reed RL (2003). *Patient satisfaction with primary health care services in the United Arab Emirates*. International Journal for Quality in Health Care; 15(3): 241.

McCarthy M (2002). *A brief history of the World Health Organization*. The Lancet; 360(9340): 1111-2.

Mechanic D, Volkart EH (1961). *Stress, illness behavior, and the sick role*. American Sociological Review; 26(1): 51-8.

MOH-Iraq (2008). *Conference Recommendations*. Health System Reform Conference in Iraq, Baghdad.

MOH-Kurdistan Region (2004). *Conference recommendations*. Health system reform conference in Kurdistan Region, Dohuk.

MOH-Kurdistan Region (2006). *Conference recommendations*. Health system reform conference in Kurdistan Region, Erbil.

MOH-Kurdistan Region (2010). *Conference recommendations*. Health system reform conference in Kurdistan Region, Erbil.

Moorhead S, Johnson M, Maas M (2004). *Nursing outcomes classification (NOC)*. St. Louis, MO: Mosby.

Moran AC (2006). *Maternal morbidity in rural Bangladesh: women's perceptions and care seeking behaviors*. PhD dissertation. Johns Hopkins University; USA.

Motulsky H (1995). *Intuitive biostatistics*. New York: Oxford University Press.

Muhammad KI (2003). *[Erbil: demographic and economic studies]*. Erbil.

National Center for Health Statistics (2011). National health and nutrition examination survey (NHANES). Retrieved Oct 23, 2011, from www.cdc.gov/nchs/nhanes.htm.

NHS (2011). NHS Direct. Retrieved October 29, 2011, from www.nhsdirect.nhs.uk.

Oakes JM, Kaufman JS (2006). *Methods in social epidemiology*. New York: Jossey-Bass Inc Pub.

Ogden J, Bavalia K, Bull M, Frankum S, Goldie C, Gosslau M, Jones A, Kumar S, Vasant K (2004). *"I want more time with my doctor": a quantitative study of time and the consultation*. Family Practice; 21(5): 479.

Orszag PR, Ellis P (2007). *The challenge of rising health care costs, a view from the Congressional Budget Office*. New England Journal of Medicine; 357(18): 1793-5.

Peng Y, Chang W, Zhou H, Hu H, Liang W (2010). *Factors associated with health-seeking behavior among migrant workers in Beijing, China*. BMC Health Services Research; 10.

Peschke L, Mohammed A, Al-Dabbagh S (2009). *Patient satisfaction in Duhok, Kurdistan region of Iraq: family medicine center vs. primary health care centers*. Duhok Medical Journal; 3(1): 51-63.

Pourreza A, Khabiri R, Foroushani AR, Sari AA, Arab M, Kavosi Z (2011). *Health care-seeking behavior in Tehran, Islamic Republic of Iran*. World Applied Sciences Journal; 14(8): 1190-7.

Pronyk P, Makhubele M, Hargreaves J, Tollman S, Hausler H (2001). *Assessing health seeking behaviour among tuberculosis patients in rural South Africa*. The International Journal of Tuberculosis and Lung Disease; 5(7): 619-27.

Reifel N, Rana H, Marcus M (1997). *Consumer satisfaction*. Advances in Dental Research; 11(2): 281-90.

Roghmann KJ, Hengst A, Zastowny TR (1979). *Satisfaction with medical care: its measurement and relation to utilization*. Medical Care: 461-79.

Ronsmans C, Chowdhury ME, Koblinsky M, Ahmed A (2010). *Care seeking at time of childbirth, and maternal and perinatal mortality in Matlab, Bangladesh*. Bulletin of the World Health Organization; 88(4): 289-96.

Rosner B (2010). *Fundamentals of biostatistics*. Pacific Grove, CA: Duxbury Press.

Ruhul A, Nirali S (2010). *Socioeconomic factors differentiating maternal and child health-seeking behavior in rural Bangladesh: A cross-sectional analysis*. International Journal for Equity in Health.

Rutstein SO, Johnson K (2004). *The DHS Wealth Index: DHS Comparative Reports No. 6*. Calverton, MD: ORC Macro.

Saeed AA, Mohammed BA, Magzoub ME, Al-Doghaither AH (2001). *Satisfaction and correlates of patients' satisfaction with physicians' services in primary health care centers*. Saudi Medical Journal; 22(3): 262-7.

Saracci R (1997). *The World Wealth Organisation needs to reconsider its definition of health*. British Medical Journal; 314(7091): 1409-10.

Schoenbach VJ, Rosamund W (2000). *Understanding the fundamentals of epidemiology: an evolving text*. Chapel Hill: North Carolina.

Shabila NP (2012). *Assessment of the primary health care system in Erbil Governorate using a multimodal method*. PhD dissertation. Hawler Medical University; Iraq.

Shaikh B, Haran D, Hatcher J (2008). *Where do they go, whom do they consult, and why? Health-seeking behaviors in the northern areas of Pakistan*. Qualitative Health Research; 18(6): 747-55.

Shaikh BT, Hatcher J (2005). *Health seeking behaviour and health service utilization in Pakistan: challenging the policy makers*. Journal of Public Health; 27(1): 49.

Shilton T, Sparks M, McQueen D, Lamarre M-C, Jackson S (2011). *Proposal for new definition of health*. British Medical Journal; 343.

Siri JG, Lindblade KA, Rosen DH, Onyango B, Vulule JM, Slutsker L, Wilson ML (2008). *A census-weighted, spatially-stratified household sampling strategy for urban malaria epidemiology*. Malaria Journal; 7(1): 39.

Sobralske MC (2004). *Health care seeking beliefs and behaviors of Mexican American men living in south central Washington*. PhD dissertation. Gonzaga University; USA.

SPSS Inc (2010). IBM SPSS Statistics Version 19.0, IBM Company.

Steinhardt LC, Waters H, Rao KD, Naeem AJ, Hansen P, Peters DH (2009). *The effect of wealth status on care seeking and health expenditures in Afghanistan*. Health Policy and Planning; 24(1): 1-17.

Steinwachs DM, Hughes RG (2008). Health services research: scope and significance. *Patient safety and quality: An evidence-based handbook for nurses*. Hughes RG. Rockville, MD: Agency for Healthcare Research and Quality.

Stolley PD, Lasky T (1995). *Investigating disease patterns: The Science of epidemiology*. New York: Scientific American Library.

Suchman EA (1965). *Stages of illness and medical care*. Journal of Health and Human Behavior; 6(3): 114-28.

Tasew TW, Tareke IG, Kifle YT, Karen WH, Richard MJ (2006). *Delays and care seeking behavior among tuberculosis patients in Tigray of Northern Ethiopia*. Ethiopian Journal of Health Development.

Telyukov A (2003). *Resources and costs in the primary health care sector of Iraq: baseline study*. Baghdad: Ministry of Health-Iraq, Abt Associates and International Medical Corps.

The Joint Commission (2010). *Advancing effective communication, cultural competence, and patient-and family-centered care: A roadmap for hospitals*. Oakbrook Terrace, IL: The Joint Commission.

UNDP, COSIT (2005). *Iraq living conditions survey 2004*. Baghdad: UNDP.

UNESCO (2010). Erbil citadel. Retrieved Janurary 14, 2012, from http://whc.unesco.org/en/tentativelists/5479/.

UNICEF (2000). *Country office program review 1990-2000, review reports - Northern Iraq*. New York: UNICEF.

UNICEF, MoH-Iraq, COSIT, KRSO (2007). *Findings from the Iraq multiple indicator cluster survey 2006: Final report*. Baghdad: UNICEF.

USAID, Tatweer Project (2009). *Iraqi human resource development sector: Health sector* Baghdad: USAID.

Vahdaninia M, Montazeri A, Goshtasebi A (2009). *Help-seeking behaviors for female sexual dysfunction: a cross sectional study from Iran*. BMC Women's Health; 9(1): 3.

Vyas S, Kumaranayake L (2006). *Constructing socio-economic status indices: how to use principal components analysis*. Health Policy and Planning; 21(6): 459-68.

Ward H, Mertens TE, Thomas C (1997). *Health seeking behaviour and the control of sexually transmitted disease*. Health Policy and Planning; 12(1): 19.

Ware JE, Davies AR, Stewart AL (1977). *The measurement and meaning of patient satisfaction: a review of the literature*. Washington, DC: Rand Corporation.

Warren C (2010). *Care of the newborn: Community perceptions and health seeking behavior*. Ethiopian Journal of Health Development; 24(1).

WHO (1991). *Facilitator guide for the EPI coverage survey*. Geneva: WHO.

WHO (1995). *A rapid assessment of health seeking behaviour in relation to sexually transmitted disease* Geneva: WHO.

WHO (1999). Alliance for health policy and systems research Retrieved Oct 22, 2011, from www.who.int/alliance-hpsr/partners/en/.

WHO (2000). *Health systems: improving performance*. Geneva: WHO.

WHO (2001). *Multi-country Survey Study on Health and Health System's Responsiveness 2000-2001*. Geneva: WHO.

WHO (2003). Global school-based student health survey (GSHS). Retrieved Oct 22, 2011, from www.who.int/chp/gshs/en/.

WHO (2004). World health survey. Retrieved Oct 23, 2011, from www.who.int/healthinfo/survey/en/.

WHO (2005a). *Strengthening management in low income countries* Geneva: WHO.

WHO (2005b). *Working with the Non-state Sector to Achieve Public Health Goals*. Geneva: WHO.

WHO (2006a). *Country cooperation strategy for WHO and Iraq 2005–2010*. Cairo: WHO.

WHO (2006b). *Economics and financial management: what do district managers need to know?* Geneva: WHO.

WHO (2006c). *Health systems profile: Iraq*. Geneva: WHO.

WHO (2006d). *Improving Health Services and Strengthening Health Systems: Adopting and Implementing Innovative Strategies*. Geneva: WHO.

WHO (2007a). *Managing the Health Millennium Development Goals - The challenge of management strengthening: Lessons from three countries*. Geneva: WHO.

WHO (2007b). *Strengthening management in low-income countries: lessons from Uganda*. Geneva: WHO.

WHO (2007c). *Towards better leadership and management in health*. Geneva: WHO.

WHO (2008a). *2008-2013 action plan for the global strategy for the prevention and control of noncommunicable diseases*. Geneva: WHO.

WHO (2008b). *Primary health care: now more than ever: World Health Report 2008*. Geneva: WHO.

WHO (2010). *Health systems financing and the path to universal coverage: World Health Report*. Geneva: WHO.

WHO, COSIT, MOH-Iraq (2007a). *Introduction to the community-based initiatives programme in Iraq*. Baghdad: WHO.

WHO, MOH-iraq (2009). *A basic health services package for Iraq*. Baghdad: WHO.

WHO, MOH-iraq (2011). *Iraq national health account 2008*. Baghdad: WHO.

WHO, MOH-Iraq, Coalition Provisional Authority (2003). *National strategy and plan of action for nursing and midwifery development in Iraq 2003 - 2008*. Baghdad: WHO.

WHO, MOH-Iraq, COSIT, MOH-Kurdistan region, KRSO (2007b). *Iraq family health survey*. Baghdad: WHO.

Wolff JL, Boyd CM, Gitlin LN, Bruce ML, Roter DL (2011). *Going it together: Persistence of older adults' accompaniment to physician visits by a family companion*. Journal of the American Geriatrics Society.

World Bank (1993). *Investing in health*. London: Oxford University Press.

World Bank, COSIT, KRSO (2007). *Iraq household socioeconomic survey*. Baghdad: World Bank.

Yanagisawa S, Mey V, Wakai S (2004). *Comparison of health-seeking behaviour between poor and better-off people after health sector reform in Cambodia*. Public Health; 118(1): 21-30.

APPENDIX I GLOSSARY

Institute of Medicine (IOM): is a not-for-profit, non-governmental American health organization founded in 1970. It's mandated to provide unbiased, evidence-based, and authoritative information and advice concerning health and science policy to policy-makers, professionals, leaders in every sector of society, and the public at large (www.iom.edu).

AcademyHealth: is a non-partisan, non-for-profit American professional health organization that was founded in 2000 and it is dedicated to advancing the fields of HSR and health policy, (www.academyhealth.org).

BRAC: Founded in 1972, BRAC is a large indigenous NGO involved in rural poverty alleviation. BRAC's Rural Development Programme (RDP) targets the poorest of the poor with special emphasis on improving the health and socioeconomic condition of women and children through group formation in village organizations (VOs), skill development training and the provision of non-formal education and collateral free loans for income-generating activities.

Millennium Development Goals (MDGs) are eight international development goals that all 193 United Nations member states and more than 23 international organizations have signed to achieve by the year 2015. They include eradicating extreme poverty, reducing child mortality rates, fighting disease epidemics, and developing a global partnership for development (http://www.un.org/millenniumgoals).

Carnegie Foundation for the Advancement of Teaching: is an independent policy and research center that was founded by the philanthropist Andrew Carnegie in 1905 to advance education primarily though research and reports (www.@@).

NHS Direct: is a 24/7 health advice and information service provided by the National Health Service (NHS) for people in England through telephone contact on the national 0845 46 47 number, web based symptom checkers at their website and via mobile. It was established in 1998 as part of the modernization of the National Health Service (NHS 2011).

APPENDIX II QUESTIONNAIRE

ژمارەی بلۆك:

هەڵسوكەوت لە كاتی نەخۆش كەوتن و ڕەزامەندی دەربارەی خزمەتگوزاری تەندروستی

دەربارەی خێزان

۹) ئایا ئۆتۆمبێلەكەتان سەرچاوەی بژێویە (بۆ نمونە: تەكسی یان لۆری)؟	۱) ژمارەی ئەندامانی خێزان: _____
۱.□ نەخێر	۲) ژمارەی ژووری نوستن: _____
۲.□ بەڵێ	۳) ڕووبەری خانوو: _____ م٢
۳.□ ئۆتۆمبێلمان نیە	۴) ژمارەی نهۆم: _____
۱۰) كۆمپیوتەرتان هەیە؟	۵) خاوەنداریەتی خانوو:
۱.□ نەخێر	۱.□ موڵك
۲.□ بەڵێ: كۆمپیوتەری سەرمێز	۲.□ كرێ
۳.□ بەڵێ: لاپتۆپ	۳.□ نە موڵك و نەكرێ (خانووی باوك یان خزمی تر)
۱۱) جلشۆری كارەباییتان هەیە؟	۴.□ هی تر
۱.□ نەخێر	_____
۲.□ بەڵێ	
۱۲) قا پشۆری كارەباییتان هەیە؟	۶) ڕووپۆشی خانوو:
۱.□ نەخێر	۱.□ لەبغ
۲.□ بەڵێ	۲.□ حەلان
۱۳) منداڵتان دەچێتە كام قوتابخانە؟	۳.□ مەرمەر
۱.□ حكومی	۴.□ هی تر
۲.□ تایبەت: _____	_____
۳.□ منداڵمان نیە	—
۱۴) چۆنیەتی ساردكردنەوەی خانوو؟	۷) تەمەنی خانوو:
۱.□ ساردكەرەوە (مبردە)	۱.□ زۆر كۆن
۲.□ سپلیت	۲.□ كۆن
۳.□ هی تر _____	۳.□ ناوەندی
	۴.□ نوێ
	۵.□ زۆر نوێ
	۸) چەند ئۆتۆمبێلتان هەیە؟
	_____

<div dir="rtl">

پرسیار دەربارەی ئەندامانی خێزان

پرسیاری گشتی:

۱) ساڵی لە دایک بوون: _____

۲) ڕەگەز:
- ☐ ۱. نێر
- ☐ ۲. مێ

۳) شوێن لە ناو خێزان:
- ☐ ۱. باوك
- ☐ ۲. دایك
- ☐ ۳. مندا‌ڵ
- ☐ ۴. باپیر
- ☐ ۵. داپیر
- ☐ ۶. هی تر _____

۴) پیشە:
- ☐ ۱. قوتابی
- ☐ ۲. کابانی ماڵ
- ☐ ۳. فەرمانبەر
- ☐ ۴. مامۆستا
- ☐ ۵. ئەندازیار
- ☐ ۶. بازرگان
- ☐ ۷. دوکاندار
- ☐ ۸. هی تر _____

۵) بەرزترین ئاستی خوێندەواری:
- ☐ ۱. نەخوێندەوار
- ☐ ۲. سەرەتایی (یان محو الامیة)
- ☐ ۳. ناوەندی
- ☐ ۴. ئامادەیی
- ☐ ۵. پەیمانگە
- ☐ ۶. کۆلێژ
- ☐ ۷. ماستەر
- ☐ ۸. دکتۆرا
- ☐ ۹. هی تر
_____

دەربارەی دواجار نەخۆشی:

۶) کەی دواجار بوو کە نەخۆش کەوتیت؟

پێش _____ ڕۆژ / هەفتە / مانگ

۷) هەستت بە چی کرد؟
- ☐ ۱. ئێش و ئازار لە _____
- ☐ ۲. کۆخە
- ☐ ۳. تا
- ☐ ۴. هەناسە تەنگی
- ☐ ۵. گەروو ئەستوور بوون
- ☐ ۶. ڕشانەوە
- ☐ ۷. زگ چوون
- ☐ ۸. هی تر _____

۸) چ کاتێکی ڕۆژ بوو کە هەستت بەم نەخۆشییە کرد؟

سەعات _____ پێش نیوەڕۆ / پاش نیوەڕۆ

۹) تا چ ڕادەیەك ئەم نەخۆشیە کاری تێکردی؟
- ☐ ۱. لە جێ کەوتم
- ☐ ۲. چوومە کار بەڵام نەمتوانی بەردەوام بم
- ☐ ۳. کارم دەکرد بەڵام بێ تاقەت بووم
- ☐ ۴. لە کاتی کار کردن هەستم بە نەخۆشی نەدەکرد

۱۰) لە کوێ داوای چارەسەریت کرد؟
- ☐ ۱. نەخۆشخانەی فریاکەوتن (تەواری)
- ☐ ۲. بنکەی تەندروستی (مرکز صحی)
- ☐ ۳. عیادەی شەعبی
- ☐ ۴. عیادەی تایبەت
- ☐ ۵. معاون طبی
- ☐ ۶. دەرمانی کوردەواری
- ☐ ۷. خۆم چارەسەری خۆمم کرد
- ☐ ۸. هیچم نەکرد، چاوەڕێم کرد
- ☐ ۹. هی تر _____

</div>

١١) بۆچی لەم شوێنه یان بەم جۆره داوای چارەسەریت کرد؟

- ١. ☐ کەمی تێچوون (مەسرەف)
- ٢. ☐ نزیکی
- ٣. ☐ ناوبانگ
- ٤. ☐ یەکێك بۆی باس کردبووم
- ٥. ☐ بەهۆی جۆری نەخۆشیەکە هەبوونی چارەسەری لەوێ
- ٦. ☐ هۆی تر

_____

١٢) چۆن گەیشتیه ئەم شوێنه بۆ چارەسەری؟

- ١. ☐ بە پێ
- ٢. ☐ پاس
- ٣. ☐ تەکسی
- ٤. ☐ ئۆتۆمبێلی تایبەت
- ٥. ☐ ئۆتۆمبێلی فریاکەوتن (ئیسعاف)
- ٦. ☐ هی تر _____

١٣) چەند چاوەڕێت کرد تا بڕیارت دا بچیته لای دکتۆر (یان معاون طبی)؟

_____ سەعات / ڕۆژ

١٤) چ کاتێك گەیشتییه ئەوێ؟

سەعات _____ پێش نیوەڕۆ / پاش نیوەڕۆ

١٥) که گەیشتییه ئەوێ، نزیکەی چەند کەسی تر چاوەڕێیان دەکرد؟

_____ کەس

١٦) ماوەی چەند چاوەڕێت کرد تا دکتۆر (یان معاون طبی)یت دیت؟

_____ دەقیقه

١٧) ئایا شوێنی چاوەڕوان کردن گونجاو بوو (وەك شوێنی دانیشتن، سارد و گەرمی، هتد...) ؟

- ١. ☐ بەڵێ
- ٢. ☐ نەخێر
- ٣. ☐ تێبینی

_____

١٨) ماوەی چەند لەگەڵ دکتۆر (یان معاون طبی) مایتەوە؟

_____ دەقیقه

١٩) بەڕای تۆ، ئەوەندە کاته بەس بوو؟

- ١. ☐ نەخێر بەپەله بەڕێی کردین
- ٢. ☐ بەڵێ بەس بوو
- ٣. ☐ تێبینی

_____

٢٠) ئایا دەربارەی نەخۆشییەکەت، بۆی ڕوون کردیەوە؟

- ١. ☐ نەخێر
- ٢. ☐ بەڵێ بەڵام زۆر بەخێرایی
- ٣. ☐ بەڵێ زۆر به جوانی

٢١) ئایا دەربارەی چارەسەری نەخۆشیەکەت، بۆی ڕوون کردیەوە ؟

- ١. ☐ نەخێر
- ٢. ☐ بەڵێ بەڵام زۆر بەخێرایی
- ٣. ☐ بەڵێ زۆر به جوانی

٢٢) ئایا سوودت له چارەسەریەکه وەرگرت ؟

- ١. ☐ نەخێر باشتر نەبووم
- ٢. ☐ کەمێك سوودم لێوەرگرت
- ٣. ☐ بەڵێ له ماوەی _____ ڕۆژ تەواو چاك بوومەوه

٢٣) ئەگەر سوودت وەرنەگرت، ئه مجاره له کوێ داوای چارەسەریت کرد؟

- ١. ☐ بنکەی تەندروستی دیکه (مرکز صحی)
- ٢. ☐ عیادەی شەعبی دیکه
- ٣. ☐ عیادەی تایبەتی دیکه
- ٤. ☐ معاون طبی دیکه
- ٥. ☐ دەرمانی کوردەواری دیکه
- ٦. ☐ خۆم چارەسەری خۆمم کرد
- ٧. ☐ هیچم نەکرد (چاوەڕێم کرد خۆی چاك بێتەوه)
- ٨. ☐ چوومەوه هەمان شوێن
- ٩. ☐ هی تر

_____

٢٤) کەی بڕیارت دا دووبارە پێویستیت بە چارەسەری
هەیە؟

دوای _____ ڕۆژ

٢٥) بە شێوەیەکی گشتی، چەند متمانە (ثقة)ت بە دکتۆر
هەیە ؟

١.□ هیچ

٢.□ کەم

٣.□ هەندێك

٤.□ زۆر

٥.□ گەلێك زۆر

٦.□ بۆچی؟

_____

٢٦)گرنگترین هۆکار چییە کە وات لێبکات بچیتە لای
دکتۆرێك؟

١.□ بڕوانامە (شهادە)

٢.□ پسپۆڕی

٣.□ ناوبانگ

٤.□ متمانە (ثقة)

٥.□ ڕێزگرتنی لە نەخۆش

٦.□ ناسین (دکتۆرەکە دەمناسێ)

٧.□ هی تر

_____

٢٧) ئایا پێت خۆشترە بچیتە لای دکتۆر یان معاون طبی؟

١.□ دکتۆر

٢.□ معاون طبی

٣.□ بۆچی؟

_____
_____
_____

٢٨) هەر تێبینیەکی ترت هەیە لێرە بینووسە؟

_____
_____
_____
_____
_____
_____

Questionnaire (English Translation)

Health Seeking Behavior and Satisfaction
Household Questionnaire

1) Household size: _____

2) No. of living rooms: _____

3) House area: _____ m^2

4) No. of floors: _____

5) House ownership:
1. ☐ own
2. ☐ rental
3. ☐ other arrangements

6) House exterior:
1. ☐ cement (simple)
2. ☐ stone interface (Halan)
3. ☐ Marmar
4. Others

_____

7) House age:
1. ☐ very old
2. ☐ old
3. ☐ moderate
4. ☐ new
5. ☐ very new

8) No. of owned cars: _____

9) Car used for earning living?
1. ☐ yes
2. ☐ no

10) Do you have a computer?
1. ☐ no
2. ☐ yes, desktop
3. ☐ yes, laptop

11) Do you have a washing machine?
1. ☐ no
2. ☐ yes

12) Do you have a dishwashing machine?
1. ☐ no
2. ☐ yes

13) Schooling of your children?
1. ☐ public
2. ☐ private
3. ☐ do not have children

14) House cooling system?
1. ☐ air conditioner
2. ☐ split system
3. ☐ others

Health Seeking Behavior and Satisfaction
Individual Questionnaire

General Questions:

1) Year of birth: _____

2) Gender:
1. ☐ male
2. ☐ female

3) Position in family:
1. ☐ father
2. ☐ mother
3. ☐ child
4. ☐ grandfather
5. ☐ grandmother
6. Others _____

4) Occupation:
1. ☐ student
2. ☐ housewife
3. ☐ civil servant
4. ☐ teacher
5. ☐ engineer
6. ☐ businessperson
7. ☐ shop-owner
8. Others _____

5) Highest level of education:
1. ☐ illiterate
2. ☐ primary
3. ☐ intermediate
4. ☐ secondary
5. ☐ institute (2 years)
6. ☐ college (4 years)
7. ☐ Master

8. ☐ PhD
9. Others _____

About Last Illness:

6) When it was last time you became ill:
before _____ days / weeks/ months

7) What did 'you' feel?
1. ☐ pain in _____
2. ☐ fever
3. ☐ cough
4. ☐ shortness of breath
5. ☐ vomiting
6. ☐ tonsils
7. ☐ diarrhea
8. ☐ others
_____

8) What time of the day you noticed the illness? _____ am / pm

9) How much the illness affected productivity?
1. ☐ stayed in bed
2. ☐ went to work but discontinued
3. ☐ could work but inefficiently
4. ☐ did not feel ill during work

10) Where did you get help for this illness?

1. ☐ emergency department
2. ☐ PHCC
3. ☐ public HC
4. ☐ private clinic
5. ☐ nurse clinic:
6. ☐ traditional med:
7. ☐ self treatment
8. ☐ no treatment
9. others:_____

11) Why did you 'go' there?

1. ☐ cost
2. ☐ proximity
3. ☐ fame
4. ☐ recommended by someone
5. ☐ availability of appropriate service
6. ☐ other:

12) How did you get there?

1. ☐ on foot
2. ☐ bus
3. ☐ taxi
4. ☐ personal car
5. ☐ ambulance
6. ☐
   others:_____

13) How long did you wait to 'take action'? _____ hours / days

14) When did you get there? _____ am / pm

15) How many people were waiting for the same service? _____

16) How long did you wait to be served by care provider? _____ min

17) Did they have convenient waiting amenities?

1. ☐ yes
2. ☐ no
3. others:
   _____

18) How much time did you spend with care provider? _____ min

19) What do you think of the time spent with the health care provider?

1. ☐ not enough
2. ☐ enough
3. comments:

20) Did the doctor explain about the disease?

1. ☐ yes
2. ☐ no

21) Did the doctor explain about the treatment?

1. ☐ yes
2. ☐ no

22) Did you get benefit (became well)?

1. ☐ no
2. ☐ partial
3. ☐ yes, within _____ days

23) If No, where did you get help?

1. ☐ another emergency:
2. ☐ another PHCC:
3. ☐ another Public clinic:
4. ☐ another Private clinic:
5. ☐ another Nurse clinic:

6. ☐ another Traditional Med:

7. ☐ self treatment

8. ☐ no treatment

9. ☐ same provider:

5. ☐ acquaintance

6. Others:

_____

7. why?

_____

24) When did you seek second opinion?
after _____ days

25) How much do you trust doctors in general?

1. ☐ at all

2. ☐ not much

3. ☐ slightly

4. ☐ much

5. ☐ too much

26) What makes you choose a specific provider?

1. ☐ degree

2. ☐ specialization

3. ☐ fame

4. ☐ trust

27) Which one do you prefer to consult?

1. ☐ medical doctor

2. ☐ nurse

3. why:

_____

_____

_____

28) Any other comments? _____

_____

_____

الخلاصة

مثل العديد من المجتمعات التي تمر بمراحل انتقالية في الدول النامية، تتوفر مجموعة واسعة من الخيارات العلاجية في اقليم كردستان. هذه التعددية الطبية هي واحدة من السمات المميزة للنظام الصحي في الاقليم. الخيارات العلاجية المتاحة للفرد في المنطقة تمتد من العلاج الذاتي الى القطاع العام اضافة الى مجموعة واسعة من خيارات ضمن القطاع الخاص. الآلاف من الناس يمرضون كل يوم و يستفيدون من هذه الخدمات الصحية ولكن لا يُعرف سوى القليل عن كيفية التماسهم للرعاية الصحية.

الهدف من هذه الدراسة هو الإجابة على الأسئلة الأساسية مثل: من هو اكثر عرضة للمرض وماذا يفعلون حين يمرضون ومتى ولماذا وكذلك رضاهم عن هذه الخدمات في عينة تمثيلية من مدينة أربيل. لتحقيق هذا الهدف، تم إجراء دراسة ميدانية مجتمعية مع حجم عينة من ١٣٢٨ شخصاً. تم استخدام صور الأقمار الصناعية ونظام المعلومات الجغرافية لتحديد الانماط السكنية التي ساعدت في تصميم عينة أكثر تمثيلا. وقد تم جمع البيانات خلال الأشهر الستة بين كانون الثاني و حزيران ٢٠١١. تم استخدام طريقة تحليل المركبات الرئيسية لتعيين الاوزان للعوامل المؤثرة بغية تحديد الحالة الاجتماعية والاقتصادية.

أظهرت النتائج أن المعدل العام للمرض بين السكان عامة هو ٧,١٪ في الأسبوعين الماضيين و١٦,٦٪ في الشهر الماضي من الدراسة. نسبة قليلة من المرضى امتنعوا عن طلب المساعدة الطبية الخارجية ولكن الغالبية (٩٠,٧٪) فعلوا ذلك وكانوا يختارونه من بين: ٤٤,٨٪ استشاروا طبيبا في عيادة خاصة، ٢١,٨٪ عيادة الممرض، ١٧,٤٪ قسم الطوارئ، ٩,٤٪ المراكز الصحية و ٦,٥٪ في العيادات الشعبية المسائية. لم يستعمل أحد من العينة الطب الشعبي للوهلة الاولى ولكن نسبة قليلة (٢,٤٪) فعلت ذلك عندما لم تحصل على الفائدة المرجوة من المحاولة الأولى كما اختارت نسبة مماثلة السفر إلى خارج القطر لتلقي العلاج كخطوة ثانية. يمكن لنتائج هذه الدراسة مساعدة راسمي السياسات الصحية العامة على فهم أفضل لطريقة تصرف الناس عند إصابتهم بالمرض ومساعدتهم على التخطيط لزيادة كفائة الخدمات الصحية.

پوخته

هەروەك زۆربەی ئەو کۆمەڵگایانەی که به قۆناغی گۆڕانکاریدا تێپەڕ دەبن لە ولاتە گەشەسەندووەکان، ژمارەیەکی زۆر بژاری چارەسەری لە هەرێمی کوردستان لەبەر دەستی خەڵك دایە. ئەم فرە لایەنیە پزیشکیە یەکێکە لە تایبەتمەندیە جیاکەرەوەکانی سیستەمی تەندروستی لەم هەرێمە. بژارە تەندروستیەکانی بەردەستی خەڵك هەر لە خۆچارەسەر کردن دەست پێ دەکات تا دەگاتە کەرتی گشتی تەندروستی به هەر سێ ئاستی یەکەمی و دووەمی و سێیەمی تا دەگاتە چەندین بژاری جیای کەرتی تایبەت. هەموو ڕۆژێك هەزاران کەس نەخۆش دەکەون و ئەم خزمەتگوزاریانە بەکار دەهێنن بەڵام زانیاری کەم هەیە دەربارەی هەڵسوکەوتیان لە کاتی نەخۆش کەوتن.

ئامانجی ئەم تویژینەوە وەڵامدانەوەی چەند پرسیارێکی سەرەکیە وەك: کێ نەخۆش دەکەوێت و لەکاتی نەخۆش کەوتن چی دەکەن، کەی و بۆچی جگە لە ڕەزامەندیان دەربارەی ئەم خزمەتگوزاریانەی که وەریان گرتووە. بۆ هێنانەدی ئەم ئامانجە، تویژینەوەیەکی مەیدانی کۆمەڵگەیی ئەنجامدرا لە نموونەیەکی ١٣٢٨ کەس لە دانیشتوانی شاری هەولێر. وێنەی مانگە دەستکردەکان و سیستەمی زانیاری زەویناسی بەکار هێنراوە بۆ دەستنیشان کردنی نەخشی شوێنی دانیشتوان بۆ دەستکەوتنی نموونەیەك که زیاتر نوێنەرایەتی دانیشتوانی شارەکە بکات. زانیاریەکان لە شەش مانگی نێوان کانونی یەکەم و مایسی ٢٠١١ کۆکراونەتەوە. شێوازی "شیکردنەوەی پێکهاتە سەرەکیەکان" بەکار هاتووە بۆ دیاری کردنی ئاستی ئابووری و کۆمەڵایەتی.

ئەنجامەکان وا نیشان دەدەن که ڕێژەی نەخۆش کەوتن لە دوو هەفتەی ڕابردوو ٧,١٪ و لە مانگی ڕابردوو ١٦,٦٪ بوو. ژمارەیەکی کەم هیچ خزمەتگوزاری تەندروستیان بەکار نەهێناوە لەکاتی نەخۆش کەوتن بەڵام زۆربەیان (٩٠,٧٪) یەکێك لەمانەیان بەکارهێناوە: ٤٤,٨٪ دکتۆر لە نۆڕینگەی تایبەت، ٢١,٨٪ نۆڕینگەی پەرستیار یان یاریدەدەری پزیشك، ١٧,٤٪ بەشی فریاکەوتن، ٩,٤٪ بنکەی تەندروستی و ٦,٥٪ نۆڕینگە میللیەکانی ئێواران. کەسیان خزمەتگوزاری پزیشکی میللیان بەکار نەهێنابوو لەسەرەتادا بەڵام ڕێژەیەکی کەم (٢,٤٪) پەنایان بۆ ئەم خزمەتگوزاریە بردووە لە کاتی سوود وەرنەگرتن لە جاری یەکەم. ڕێژەیەکی هاوشێوە ناچار بوون که پەنا ببنەنە بەر دەرەوەی ولات بۆ چارەسەری لە هەنگاوی دووەم. ئەنجامەکانی ئەم تویژینەوەیە دەکرێت یارمەتیدەر بێت بۆ بەرپرسان لە بواری نەخشەکێشان بۆ سیاسەتی تەندروستی کۆمەڵ بۆ ئەوەی زیاتر لە چۆنیەتی ڕەفتاری نەخۆش تێبگەن و پلانی شیاو بۆ خزمەتگوزاری باشتر دابینێن.

HAWLER MEDICAL UNIVERSITY

سلوك التماس الرعاية الصحية ورضى المستخدم
عن الخدمات الصحية في مدينة اربيل

رسالة مقدمة الى مجلس كلية الطب في جامعة هَولير الطبية كجزء من
متطلبات نيل شهادة الدكتوراه في الفلسفة في طب المجتمع

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١٤٣٣	٢٧١٢	٢٠١٢

هەڵسوکەوت لە کاتی نەخۆش کەوتن و ڕەزامەندی دەربارەی خزمەتگوزاریە تەندروستیەکان لە شاری هەولێر

نامەیەکە پێشکەش کراوە بە ئەنجومەنی کۆلێژی پزیشکی لە زانکۆی هەولێری پزیشکی وەك بەشێك لە

پێداویستی یەکانی بەدەستهێنانی بڕوانامەی دکتۆرا لە فەلسەفە لە پزیشکی کۆمەڵ

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۱٤۳۳   ۲۷۱۲   ۲۰۱۲